CRANFIELD UNIVERSITY

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A mixed method study of airline brand equity

College of Aeronautics
Doctor of Philosophy

PhD
Academic Year: 2008 - 2012

Supervisor: Keith John Mason (PhD)
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ABSTRACT

This research investigates airline brand equity in a sequential, mixed method study. The initial, exploratory study undertaken with the focus groups identified relevant issues that influence airline brand equity. The secondary associations of airline brands are often related to the airlines' country of origin and culture or the intangible cues that are used in airline advertisements. These intangible cues and secondary associations play an important role in triggering airline brand awareness and the unique brand value proposition of each airline. The questionnaire-based study shows that the structure of airline brand equity is comprised of three factors. The first factor highlights the importance of airlines being able to provide suitable and innovative products and consistently good service. The second factor is a reflection of the first factor, i.e. airlines that can deliver both suitable tangible products and good services will be able to establish a large base of loyal customers. The third factor highlights the importance of establishing brand awareness. Based on the structure of airline brand equity that was found, there are four clusters of airline passengers with similar airline brand perceptions, namely: 'Loyal customers'; 'Asking for consistency customers'; 'Hard to please customers'; and 'Difficult to talk to customers'. The determinant attribute analysis shows that the determinant for the choice of airline brand is different. Each airline is different in its branding, products and service strategies. This suggests that the ways in which each airline brand can meet the needs of each group of airline passengers will also be different.

This research demonstrates that the structure of airline brand equity for full-service and low-cost carrier brands is different. For full-service carrier brands, it is the delivery of suitable tangible products and services that encourages loyalty. In contrast, when price is the most influential determinant attribute, it is the low-cost carrier brands' resources and ability to offer consistently low fares that helps them to establish a large base of repeat customers.

DEDICATIONS

I dedicate this thesis to Keith John Mason. Your contribution is the most influential determinant attribute for my success in this PhD research. I am honoured to have received your guidance and encouragement. Your intellectual generosity has helped me to become the ideal researcher I have *always* wanted to become. Thank you for pushing me towards excellence and for everything that you do.

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Everyone knows that a PhD is a degree awarded for an ‘original contribution’ to the field of research. An important aspect that has too often, been overlooked is the personal development that took place. As my PhD journey reaches the ‘Finish’ line, I would like to express my sincerest sense of appreciation to sixteen individuals that have helped me in my research as well as shaping me into the person that I have become.

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Chapter 1 Introduction

1.1 Statement of the problem and its significance

In many regions, full-service carrier brands have lost significant proportions of market share to low-cost carriers. In 1991, when Ryanair rebranded itself from a full-service carrier to a low-cost carrier, the traffic between the United Kingdom and Irish markets increased 400%. Since then, the annual traffic growth of Ryanair has increased by 30.5% (O'Connell and Williams, 2005).

Table 1.1-1 shows that, in the United Kingdom, the number of passengers travelling on low-cost carriers is increasing significantly while, the full-service carriers are carrying fewer passengers.

Table 1.1-1 United Kingdom passengers by carrier type between 2000 – 2008 (millions)

	Passengers uplifted by United Kingdom' airlines (millions)			
Carrier type	2000	2003	2006	2008
Full-service carriers	53.9	44.8	50.7	47.5
Low-cost carriers	7.0	19.2	32.3	42.7
Charter carriers	33.3	34.4	32.7	30.4
Regional airlines	9.3	10.1	9.8	9.3
Total United Kingdom' airlines	103.7	109.8	127.7	130.7

Source: Civil Aviation Authority (CAA), 2008

In Australia, Virgin Blue started operations in 2000, yet by 2007, it had gained 30% market share of airline passengers in the domestic market (Lawton and Solomko, 2005). In the United States, the demand for air travel increased while

fares decreased after Southwest Airlines entered a route that was once dominated by full-service carriers (Vowles, 2001). In the short term, full-service carriers have responded by introducing price discounting tactics, in order to regain the lost market share. However, because their cost structure is higher than that of low-cost carriers, any gain in market share may not necessarily contribute to the long term sustainability of their business. This suggests a need for airlines, especially full-service carriers, to find an alternative strategic solution that will help them to communicate and deliver unique benefits in order to attract airline passengers. Brand equity is defined as "the differential effect of brand knowledge on consumer response to the marketing of the brand" (Keller, 1993). In this research, airline brand equity will be investigated. This will help airlines to identify suitable brand value propositions that can better meet the needs of airline passengers.

This research has the following research objectives:

1. To identify factors that affect airline brand equity;
2. To propose tactical and strategic approaches that may be adopted by airlines to build brand equity;
3. To determine size and profile of each market segment; and
4. To determine the appropriate brand message that appeals to each market segment.

In the literature on brand equity, there are two contrasting frameworks demonstrated by Keller,(1993) and Aaker,(1996). The former proposed a knowledge-based model with two components: brand awareness and brand image. Keller argues that brand equity is an outcome of having established brand awareness and a strong, favourable and unique brand image. Keller's 1993 perspective suggests that satisfaction from the benefits that each brand delivers is the key factor that encourages loyalty.

In contrast, Aaker,(1996) proposed that brand equity is comprised of brand awareness, brand associations, perceived quality and brand loyalty. Aaker has argued that, because each industry is different, the proportionate weighting on each component is likely to be different. In comparison with Keller's 1993

perspective, Aaker, (1996) suggests that the establishment of brand equity depends on how each brand can deliver on the aspect that customers rank as being the most important.

There are two methods for investigating brand equity: direct and indirect. The indirect method focuses on outcome measures such as customers' willingness to pay, price premium and market share. The direct method focuses on outcome measures that are used as indicators of brand strength. These measures, however, do not indicate how distinctive a brand is or how the customers themselves perceive the brand. In contrast, the indirect method examines, from the customers' perspectives, the potential sources of brand equity such as brand awareness and brand perceptions, perceived quality and brand image. An investigation of airline brand equity from customers' perspectives would identify areas in which airline managers can introduce suitable tactics and strategy that would directly influence customers' brand perception and choice of airline.

In this research, airline brand equity will be investigated in a sequential mixed method study, prioritising a quantitative approach. A qualitative approach will be used initially in order to gain an understanding of relevant issues that influence airline brand equity and to explore the potential attributes on which the second part will focus. In the second part, a questionnaire-based study will be conducted in order to assess airline brand perceptions and product importance.

A determinant attribute analysis will be conducted to assess product importance, the first part of which will examine the perceived similarity of airline product to competitors' airlines. The second part will examine the perceived importance of each airline product.

1.2 Thesis structure

This thesis contains six chapters.

1.2.1 Chapter 2 – Literature review

This chapter reviews literature pertinent to this research. This literature has been drawn from the fields of air transport, marketing, services and brand equity studies. The aim of the literature review is to provide the reader with an understanding of the perspective this thesis will take.

1.2.2 Chapter 3 – Methodology

This chapter contains an overview of the sequential, mixed method design of this research. It outlines the use of qualitative and quantitative methods in seven research stages. This chapter will also point out how the qualitative and quantitative data collected are integrated into this mixed method study.

1.2.3 Chapter 4 – Qualitative methods

This chapter contains a detailed explanation of the steps that were taken in the exploratory study. It explains how focus group participants were recruited, how the focus groups were conducted, and gives an analysis of the qualitative data and findings of the exploratory study. It also identifies how the strength of the qualitative method will be used further in the quantitative part of this research.

1.2.4 Chapter 5 – Quantitative methods

This chapter explains in detail how the segmentation study was conducted in a questionnaire-based study and details each stage in the segmentation study. It also explains the steps undertaken for statistical analyses.

1.2.5 Chapter 6 – Conclusion

Chapter 6 identifies the contributions that this research has made. Both theoretical and practical contributions to the airline brands will be discussed.

Chapter 2 Literature review

This chapter investigates the literature pertaining to the area of study – airlines and airline branding. The characteristics of the airline product are considered and elements that make the industry somewhat unique are highlighted in sections 2.2 and 2.3. How these differences impact on the sector, and its ability to create strong brands, is highlighted. Section 2.4 will discuss the issues related to establishing brand equity. Section 2.5 will discuss the bundling strategies that are increasingly being adopted by many airlines and the impact of these strategies on airline passengers' perceptions of airline brands.

2.1 Airlines

In the airline business, the market is often segmented by trip purpose (the need to travel for business purposes, for leisure or to visit friends and relations), and trip duration (short or long-haul), because travellers with different purposes for travelling and with different journey lengths often have different needs (Dresner, 2006; Fourie and Lubbe, 2006; Mason and Gray, 1995). An airline may struggle to meet the needs of all the market segments it serves. Full-service carriers such as British Airways and Singapore Airlines are likely to have business travellers as their primary target market segment. Whereas, Low-cost carriers such as EasyJet, Ryanair, Air Asia and Jetstar Airways are more likely to have leisure travellers as their primary target market segment (Forsyth, 2003: Lindstädt and Fauser, 2004; O'Connell and Williams, 2005)

The infrastructure of full-service carriers and low-cost carriers is different. The infrastructure of full-service carriers comprises a wide range of products and services (for example, airport lounges and frequent flyer schemes) and inflight amenities (such as personal in-flight entertainment systems and expensive on-board dining). In contrast, low-cost carriers emphasise limited products and low fares.

Airlines are facing a strategic problem. Competing on price, it does not provide an airline with a long-term solution to creating a lasting differentiation from other airlines. Branding offers an alternative for airlines to differentiate themselves

from other competing airlines, while also presenting a unique value proposition to attract customers (Sinclair and Stalling, 1990). A brand is a “name, term, sign, symbol, or design which is intended to identify the goods and services from one seller” (Kotler and Keller, 2005, p.274). This definition suggests that branding is only an identification and recognition tool. In contrast, Farquhar (1989) sees branding as a tool that allows businesses to add value to their products. This suggests that, in the airline sector, branding can help airlines to present their product and service offerings to better meet the needs of their passengers.

The airline business is different from other industries because an airline’s principal product offering is an intangible product providing transport from one point to another. Airlines’ advertising and branding communication emphasise both good service and innovative products such as personal in-flight entertainment systems, on-board seating and airport lounges. The challenge for airlines is how to communicate the functional benefits from their tangible products and services which provide intangible benefits to consumers.

2.2 Products

Airlines’ innovative products lose distinctiveness quickly, especially as new product features like flat beds or upgraded in-flight entertainment products are introduced to the market. For example, Emirates was the first airline to provide personal in-flight entertainment to all passengers in every class in 1991 (Alamdari, 1999). This in-flight innovation has aged and many airlines now offer this facility on-board their aircraft (Aksoy et al., 2003).

2.3 Service

The airline product is also a service. There are at least four factors that differentiate service from other tangible goods namely: intangibility, perishability, heterogeneity and inseparability (Chong, 2007; Kay, 2006; Ng et al., 1999).

Airline services are perishable. This means that an empty seat on a flight is a lost revenue opportunity. The airline industry differs from other industries

because it cannot easily adjust capacity when demand changes (Hätty and Hollmeier, 2003).

Airlines want to attract consumers from as many market segments as possible, in order to fill as many spare seats as possible. This has resulted in situations where many passengers receive relatively generic travelling experiences regardless of what their true needs may be (Franke, 2004). In other words, to meet the disparate needs of different groups of consumers, airlines tend to offer a standardised product that meets the minimum needs of all their consumer groups, but which may fail to meet exactly the needs of any one group of consumers. As all airlines tends to do this, airline products offered by different airlines have a tendency to be rather alike.

The heterogeneity in service production indicates the importance of training staff, especially front-line employees who interact throughout a service provision with the airlines' customers. The consistency of high customer service standards may increase customers' loyalty and expand the airline's customer base (Wirtz et al., 2008), thus, emphasising the importance and commercial benefit of constant service delivery. On-going training programmes cannot remove the problem of heterogeneity in the service process, but they may help to reduce any extreme variations. In achieving this objective, internal communication has often been suggested, because it helps each employee to understand the values that are core to the airline's brand and how they can contribute to that brand (Chong, 2007).

Airline services are intangible. This intangibility means that consumers lack an objective source of information with which to evaluate the service. Consequently, the level of perceived risk associated with service purchases is often greater than that associated with the purchase of physical goods. Many airlines attempt to establish brand awareness, and build a strong corporate image, in order to lower the level of perceived risk experienced by potential customers. By establishing in the minds of their consumers the values for which the airline stands, a promised level of service and the likely way in which consumers will be treated, airlines can seek to create a set of beliefs about their

brand. For example, airlines often participate in social and charitable causes by sponsoring major events, in an effort to ensure that consumers will become more familiar with the brand (Shaw, 2004). Emirates, for instance, screen locally-produced advertisements in Australia to demonstrate their relevance in the Australian market. Emirates' advertisements highlight their operations in Australia and show a table of the top-ten airlines in the market to emphasise the noticeable absence of Qantas. Secondly, Emirates reduce the risk of being perceived as a Middle Eastern airline, and any negative brand image associated with that region, by emphasising that it is an international airline based in Dubai and by employing multinational flight attendants who provide a high level of customer service.

The fourth characteristic of a service is inseparability. This means that production and consumption of services occurs simultaneously. When a service fails, airlines cannot replace it in the same way that manufacturers can provide replacements. This defines the critical incident between the service provider and the consumer. This interaction determines whether an airline can deliver the promises made to passengers. The air travel process is complex and involves many points of contact between consumers and airline staff, sometimes called 'moments of truth' (Wirtz et al., 2008). For example, a passenger's first interaction with an airline occurs when he/she makes reservations. If the reservation is made through the airline's call centre, it is the combination of professionalism, knowledge and the service that the call agent provides that will directly influence the traveller's perceptions of the airline brand. In contrast, if the reservation is placed through a travel agent (or travel management companies) or other intermediary, the external party may influence customers' perceptions of the airline brand (Dumazel and Humphreys, 1999).

Many airlines are increasingly outsourcing customer service tasks to a third party contractor. This means that the services that these contractors provide can also influence the perceptions that travellers have of airline brands. This suggests that it is important for airlines to establish good working relationships

with third parties such as travel management companies and ground service providers. The focus is to explore how these outsourced workers can deliver good services which are also consistent with an airline's core values. For example, Ryanair sees significant outsourcing of customer service tasks as an important cost-management measure that helps the airline to offer the lowest fares (Barrett, 2004b). In contrast, Southwest Airlines sees the interaction between the airline's employees and passengers as an important source of differentiation. Instead of outsourcing frontline staff (such as airport gate agents), Southwest Airlines places emphasis on recruiting employees who have values similar to those of the airlines (de Chernatony and Segal-Horn, 2003).

This process of interaction between airline and customers continues during the air travel journey including airport check-in, in-flight service and baggage delivery. Despite the complexity of the air travel journey, the level of interaction between airlines and their consumers is low when compared with other industries (Berry and Seltman, 2007). Part of the service philosophy in practice is to take a holistic approach to the customer journey and to apply the concept of Total Journey Management (TJM) (Gustafsson et al., 1999). The TJM concept attempts to break down the air travel process into units so that manufacturers can systematically identify each stage of goods production. TJM identifies the characteristics of the different parts of a journey and highlights which staff will be involved in delivering the respective elements of the service. The identification of each service encounter allows airlines to introduce appropriate training and service procedures to meet the needs of each passenger, and the service objectives of the each airline (Chong, 2007).

The interaction between service providers and customers in airlines and other sectors is different. For example, in the health sector the process is less complicated, but the interaction is highly personalised. Health professions are able to personalise each service delivery. Hence, final prices are payable after the services have been delivered (Berry and Seltman, 2007). With airlines, price is one of the most important influences on airline choice. Fares are paid before the service is provided, yet airlines cannot solely compete solely on price.

Heavily discounted fares may not contribute to the cost structure requirements. For example, the infrastructure of full-service carriers is comprised of a wide range of products and services. Price discounting is a short-term tactic when demand for air travel declines (Hätty and and Hollmeier, 2003). Thus the difficulties that airlines face are strategic rather than tactical in that they must meet both the needs of airline passengers as well as the airlines' profitability requirements. Branding can offer a long-term solution to both requirements.

2.4 Branding strategy

A full-service carrier such as British Airways sees branding as a tool to communicate the airline's unique value propositions to its customers (Dana and Vignali, 1999). Branding helps an airline to distinguish itself from other airlines, while also better meeting the needs of its passengers. The corporate brand of an airline communicates the essences of airline (Shaw, 2004). The corporate brand of British Airways highlights high levels of customer service, and product innovation. British Airways realises that the prerequisite to having a distinctive brand is to provide suitable, tangible products, yet this can also be matched by other airlines. It is, therefore, the service that airline employees provide - an intangible benefit - that will help to distinguish its brand.

One way to create lasting differentiation in a brand is to provide emotional connections between the brand and its customers (Klaus and Maklan 2007; Morrison and Crane, 2007). These emotional links, once created, cannot be easily copied by a competitor in the same way that a tangible product element (such as a flat bed or an in-flight entertainment system) can. In order to create intangible brand differentiations and emotional connections with their customers, airlines can provide training programmes that will equip staff with the necessary skills in serving the customers. For example, British Airways introduced a 'Putting People First' programme for their employees. This organisation-wide programme not only promoted the service culture within the airline, but also provided frontline staff such as flight attendants, with the necessary skills in serving the needs of travellers (Driver, 1999). The programme curriculum includes training to help each frontline employee to

provide high levels of customer services such as cultural awareness, communication and problem-solving skills. These are the skills needed to help frontline staff deliver the unique benefits that customers will only associate with the British Airways brand. Singapore Airlines, whose corporate brand also emphasises 'constant innovation and new service development' (Heracleous et al.,2009), introduced the 'Service Over and Above the Rest' (SOAR) programme, which also aimed to promote service culture internally, and to enable frontline staff to deliver high levels of customer service. Both the British Airways and Singapore Airlines examples illustrate the important role that airline employees play in delivering the intangible differences, which, in turn serve to differentiate each airlines' service provision.

Many airlines have invested significantly in online technology. The internet allows passengers to search for information and book flights directly with the airline (Denton and Dennis, 2000). Online technology enables passengers to take a more active role in a standardised service delivery process previously heavily dominated by the airline staff. Technology reduces the emphasis placed on the frontline staff in service delivery. However, it still cannot entirely replace the personal service that frontline staff provide. This suggests that, despite the rise in online technology, the problem of heterogeneity of service still remains, and frontline staff still play an important role in delivering the airline brand's value propositions.

The problem of heterogeneity occurs because airlines cannot fully control the result of their service delivery. The human element means that airlines face on-going issues with the consistency of service delivery. As discussed earlier, the aim of TJM is to isolate each component of passengers' air travel journey and examine how each travel component is standardised. Tangible goods and services are different because of the inseparability, meaning that service failures cannot be replaced. This critical interaction when the service is being provided is where a brand distinguishes itself from a commodity.

A brand forms a relationship with users. This relationship, which exists not just while the product is being consumed, can be grouped into three stages: prior to

consumption; during consumption; and after consumption (Morrison and Crane, 2007). For airlines, this means that brand differentiations and benefits can also be delivered in three stages. Firstly, before flights, such as when a reservation is made either through travel intermediaries or through an airline call centre or website, and check-in. For example, Southwest Airlines and EasyJet introduced television programmes which highlight airlines' emphasis on low fares and friendly services. Secondly, during the flight, when products and services are being delivered. It is when passengers enjoy the benefits resulting from airline brand promises, such as in-flight entertainment systems, while the training that the airline provides helps to deliver a high standard of in-flight service. Thirdly, after flights, once the brand promises have been delivered. After-trip communication allows airlines to provide service-recovery procedures. For example, service mishaps can be followed by a letter of apology, and courtesy calls from the airline's customer service representatives to explain such situations, but can also provide news and updated information on airline offerings and activities. Singapore Airlines encourage customers to write feedback or share their air travel experience with the airline (Heracleous and Wirtz, 2009). These communication tactics help both airlines and customers to interact beyond the air travel process. The three stages of brand relationship combine to create a differentiated air travel experience that distinguishes it from a commodity.

In order to meet the various needs of travellers during the three stages of a brand relationship, it is necessary to understand the factors that discriminate between each segment of the market (Harris, 2002). As pointed out earlier in the chapter, airlines segment the market by trip purpose and trip duration. British Airways has already been identified as an example of an airline which adopts multiple branding strategies, consisting of a corporate brand and sub-brands (Shaw, 2007). The aim of the corporate brand is to communicate the most distinguishing feature of an airline. In contrast, the aim of each sub-brand is to meet the needs of each market segment that requires different products and services.

Figure 2.4-1 shows the structure of the British Airways brand. Each British Airways' sub-brand reflects a class of on-board travel and trip duration: 'First', 'Club Europe', 'Club World', 'World Traveller Plus', 'Euro Traveller and 'World Traveller. Each sub-brand is supported by products suitable for each sub-segment. For example, both 'Euro Travellers' and 'World Travellers' are sub-brands of the economy class product targeted at leisure travellers. 'Euro Traveller' is targeted at short-haul leisure travellers and 'World Traveller' targets long-haul leisure travellers.

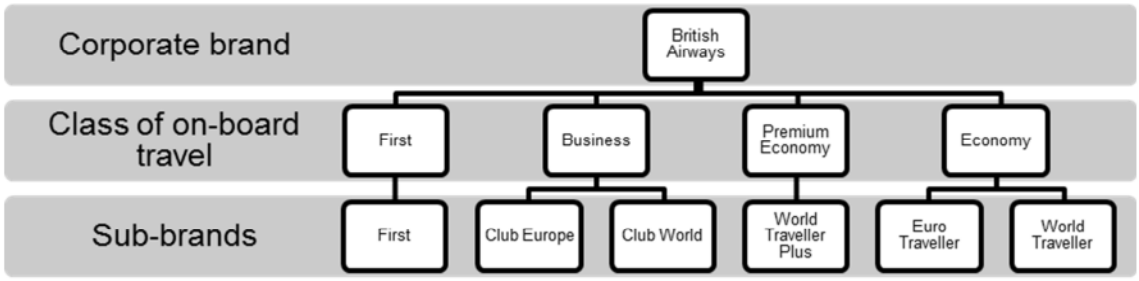


Figure 2.4-1 Brand structure of British Airways

Source: Shaw, 2004

Airlines provide a wide range of products and services. These are not of equal importance to customers. Airline products can be classified into four categories: core, expected, augmented and future products (Alamdari, 1999). In contrast, Anderson and Golden (1984) classify products as having either essential, salient or determinant attributes. Core products and essential attributes, (such as flight schedules, safety records, and punctuality) are the most basic, but they form a fundamental part of the journey. Expected products and salient attributes (such as personal in-flight entertainment and in-flight meal service) are those that airlines ought to provide. These are part of the usual range of offerings when flying long-haul using full-service carriers. Augmented products are the extras, such as airport lounges, which are value-added products for premium passengers flying business and first class.

Airlines often emphasise salient attributes and expected products, such as friendly service and personal entertainment systems, in their advertisements. Alamdari's (1999) categorisation of core products includes those that airlines have to provide regardless, whereas, expected products are those that airlines ought to provide. This perspective assumes that it is salient attributes and expected products that influence airline choice the most, while core products and essential attributes have little influence on choice of airline. Airline brand messages often emphasise the benefits associated with core, expected and augmented products and essential and salient attributes such as safety, punctuality statistics, and in-flight service. A determinant attribute is different because it considers both perceived similarity with competitor products and the importance of the product to the consumer. This two-dimensional perspective can help airlines to identify which products or attributes influence airline choice the most.

The determinant attribute measures not only the product importance in specific situations, but it also takes into account the perceived differences in comparison with other brands (Anderson and Golden, 1984). A determinant attribute analysis illustrates that, although an attribute may be important, if it is also similar to the alternatives then this attribute lacks discrimination power and is less meaningful in creating a powerful and distinctive brand. For example, Alamdari (1999) pointed out that personal in-flight entertainment has been used as a tool to create differentiations and attract passengers. Personal in-flight entertainment systems are now widely available on many airlines. Such systems are important, especially on long-haul flights. However this product is similar across airlines. This means that airline brand messages which emphasise this product will not significantly distinguish an airline brand. By comparison, duty free shopping has been an important part of international air travel experience (Huang and Kuai, 2006). For example, Korean Air is the first airline to offer a duty free store aboard the new Airbus A380 aircraft. When Korean Air emphasises that it is the first to offer this innovation, it is likely to distinguish the Korean Air brand from other airline brands because it offers a product that is not only important but also unique (Reals, 2011).

2.5 Bundling strategy

Recently, in the airline industry, the proposition of products and benefits has been presented to customers in the form of the bundling of products and services. Guiltinan (1987 p.74) defines bundling as “the practice of marketing two or more products and/or services in a single package for a special price”. Charter airlines also sell flights with accommodation and packaged tours at discounted prices (Denton and Dennis, 2000; Williams, 2001). This is used as a way of encouraging customers to buy because this combination of selling is often cheaper than buying each part separately (Driver, 1999; Gillen and Morrison, 2003).

There are two types of bundling: price bundling and product bundling (Stremersch and Tellis, 2002). Product bundling occurs when two products are combined to form a new product. Price bundling is when two products are sold together to encourage purchase. There are three types of price bundling: pure components, pure bundling and mixed bundling (Bojamic and Calantone, 1990). A price bundling example using a charter airlines scenario shows how an airline product is sold together with a non-airline product. Hence, each product is also consumed separately.

Pure bundling occurs when products and services are only available as a single bundle. Mixed bundling allows items to be purchased as a bundle or as individual parts. Pure components are when products are only available as individual components (Simonin and Ruth, 1995). Full-service carriers have adopted a pure bundling strategy because the airfare paid includes a wide range of benefits. Low-cost carriers, on the other hand, have adopted pure components bundling because, in addition to airfares, the use of other products, such as personal on-board entertainment, food and beverages and airport lounges, incurs additional costs. Pure components bundling occurs more frequently with low-cost carriers because it emphasises low fares. However, many low-cost and full-service carriers adopt price bundling strategies (Mason and Morrison, 2008). This constitutes one reason why distinctions between full-service and low-cost carrier brands are eroding.

Price bundling is increasingly being adopted by full-service carriers. Full-service carriers serve both short and long-haul passengers. On short-haul services, speed is of the essence and the ability to get through the airport as quickly and efficiently as possible is more important than in-flight seating or meals (Franke, 2004). On a long-haul journey, timeliness is still important, but the amount of time spent on-board the flight means that consumers are much more interested in seat comfort and entertainment (Alamdari, 1999). Airline brand value propositions often focus on the needs of business and long-haul travellers, meaning that the needs of short-haul and leisure travellers are overlooked (Kalligiannis et al., 2006)

The adoption of price bundling strategies helps full-service carrier brands to become more flexible in serving the various needs of travellers. Price bundling was once strongly associated with low-cost carriers' brands. However airlines are increasingly adopting price bundling by allowing customers to buy a ticket and any additional items that they need (Gillen and Morrison, 2003). For example, Air New Zealand provides customers on flights to Australian and South Pacific destinations with four price options: 'Seat', 'Seat + Bag', 'The Works', 'Work Deluxe' (Air New Zealand, 2012). Each price bundling option delivers a different level of products and services. Price bundling enables a full-service carrier brand like Air New Zealand to maintain its emphasis on providing a range of facilities, while delivering various degrees of product needs.

The fact that full-service carriers are increasingly adopting price bundling strategies suggests that branding can play a role in enhancing the brand value propositions that also appeal to short-haul and leisure travellers, and in differentiating full-service carriers from low-cost carrier brands. In order to achieve this, full-service carrier brands have to deliver benefits that are sought after by short-haul and leisure travellers.

Full-service carriers offer a wide range of products and it is probable that travellers do not use all that are offered to them. The combination of product bundling is most effective when it consists of items that are consumed as complements (Harlam et al., 1995; Herrmann et al., 1997). Full-service carriers

emphasise an extensive range of benefits from a wide range of offerings (for example, airport lounges, limousine service to airport, gourmet on-board dining) which may be more important to business and long-haul travellers, than to short-haul and leisure travellers. Thus, airlines may find it more beneficial to offer smaller bundles of products that are consumed as complements (Docters et al., 2006). This supports Kalligiannis et al., (2006) who recommend products that better serve customer needs, as well as the view of Franke (2007) that airlines may need to provide a more differentiated service that suits each segment's needs.

There are full-service carrier brands such as Continental Airlines, United Airlines and Delta Airlines that have established the low-cost, subsidiary airline brands of Continental Lite, Ted, and Song Airlines respectively. These airlines are brand extensions of full-service carriers. These low-cost, carrier brands were established to serve the needs of price-sensitive, leisure travellers (Forsyth, 2003; Lindstädt and Fauser, 2004; Morrell, 2005). However these low-cost carrier brands no longer exist, because they attracted passengers away from the parent airline brand and cannibalised the parents' market share (Graf, 2005; Markus, 2007). This indicates that the low-cost airline brands' value propositions were too similar to the parent airline brands. This means that at the most basic level each airline brand needs to serve different destinations.

An airline's core product is a seat on a flight to the destination that passengers want (Alamdari, 1999) and price is one of the greatest influences on airline choice (O'Connell and Williams, 2005). However airlines do not compete solely on price and destination coverage; they also compete on other aspects such as the provision of better customer services and products. When airlines are pursuing more than one market segment, a separate brand for each segment is preferable, because this creates a win-win situation for both parent and subsidiary airline brands (Harris, 2002). This suggests that, in order for full-service carrier brands and low-cost carrier subsidiary brands to remain distinctive, the key purchasing criteria for each needs to be different.

Both Singapore Airlines and Qantas are examples of full-service carriers that have established separate, low-cost airline brands to pursue target market segments different from the parent airlines (Markus, 2007). The introduction of full-service carriers' subsidiary low-cost carrier brands such as Jetstar Airways and Tiger Airways was designed to meet the needs of price-sensitive and leisure travellers. This enabled the parent full-service carrier brands to pursue the needs of business and less price-sensitive leisure travellers through constant product innovations for the parent airline brand. Singapore Airlines established Silk Air, as a separate brand to pursue the needs of short-haul travellers on leisure routes. Silk Air is a full-service carrier brand which focuses on meeting the needs of short-haul leisure travellers. Thus the Silk Air brand provides lesser products that are still suitable for short-haul travellers. For example, the airline provides two classes of on-board service: business and economy class. However, because it is a short-haul leisure airline, its business class product is less luxurious than those of the parent airline brand, Singapore Airlines.

The first key step to ensure that the parent and the subsidiary airline pursue different markets can be achieved by serving different destinations. For example, Qantas and Jetstar achieved this by serving different destinations. This example illustrates that, at the most basic level, the key to ensuring that each brand pursues a different market is to fly to different destinations. To enhance these distinctions, the determinants for each airline brand also needs to be different. The Qantas brand scenario highlights the fact that, where destinations are served by both parent and subsidiary airline brands, and where each airline brand delivers on different determinants, the resulting flexibility enables the parent airline brand to serve the primary target market segment, often consisting of high yield business travellers, while using a low-cost carrier brand to serve more price-sensitive leisure travellers.

To meet the needs of the most price-sensitive travellers, a separate brand such as Tiger Airways provides the most limited products and service within the Singapore Airlines group of airlines. The airline's core product is the network of

destinations. This Singapore Airlines example shows that, besides the destinations, the determinant for each airline brand is also different. By comparison, in Australia, Qantas (the parent airline's brand) and Jetstar (the subsidiary low-cost brand) emphasise different brand messages to appeal to different target market segments. The Qantas brand focuses on the airline's primary target market segments; business travellers from main Australian and international gateway cities. For example, in the Australian domestic market, the aim of Qantas' 'CityFlyer' (a descriptive brand) is to target business travellers requiring high flight frequency between Australia's primary gateway cities such as Sydney, Melbourne, Brisbane and Adelaide. This descriptive brand is supported by suitable tangible products such as valet parking, airport lounges, and frequent flyer programme benefits. In comparison, the Jetstar brand focuses on more price-sensitive leisure travellers flying to secondary cities and provides lesser products. The parent and subsidiary airline brands are supported by appropriate products which deliver suitable value propositions for each brand catering for the target market segments. Qantas and Jetstar overlap on some routes. This allows each airline brand to serve the needs of travellers with various degrees of price sensitivity and product requirements efficiently. The examples of Jetstar, Tiger Airways and Silk Air illustrate how the establishment of separate brands that deliver on different determinants meets the needs of the primary target market.

In regions where full-service and low-cost carriers use the same airport, both can serve travellers' needs regarding departure location equally. The content of airline brand messages needs to expand beyond the benefits related to the basic convenience of using secondary airports. There are full-service carriers that have established a low-cost subsidiary under a separate brand: Air New Zealand (Freedom Air), Qantas (Jetstar), Singapore Airlines (Tiger Airways), United Airlines (Ted).

This example of full-service carriers and their subsidiary brands demonstrates how each brand positions itself to appeal to a different target market segment. Each brand is also supported by suitable tangible products and levels of

service. The brand value propositions of Qantas, Jetstar, Singapore Airlines, Silk Air and Tiger Airways demonstrate how each brand delivers hybrid needs consisting of a mix of tangible and intangible benefits suitable for the target market segment. In comparison, full-service carriers' low-cost subsidiary brands, such as Freedom Air, Continental Lite, and Ted, have ceased operations. This may be attributed to value propositions that are too similar to those of parent airlines. For example, the Freedom Air network overlapped with Air New Zealand, and product offerings were similar. The benefits that the subsidiary brand provided were not significantly different from those of the parent airline brand. Similarly, there were no significant differentiations between United and its subsidiaries Ted, and Delta and its subsidiaries Song Airlines. Each of these airlines served the same destinations, using similar products such as aircraft, airport facilities and similar levels of in-flight service. The delivery of each brand did not provide unique benefits. This similarity meant that brand messages become less effective, because the benefits provided by each brand were not unique.

Compound branding is when the corporate brand or the corporate brand name is applied alongside a descriptive label in each sector. Virgin Atlantic Airways represents a unique example of an airline that adopts a combination of descriptive and compound branding strategies (Shaw, 2004). For example, when the Virgin brand is applied in the airline sector, it is applied as 'Virgin Atlantic Airways'. When the brand is applied in other sectors, the 'Virgin' brand is used alongside descriptive labels in that sector; for example, telecommunication ('Virgin Mobile', 'Virgin Broadband'), land transportation ('Virgin Train') and music ('Virgin Music'). This is demonstrated in Figure 2.5-1.

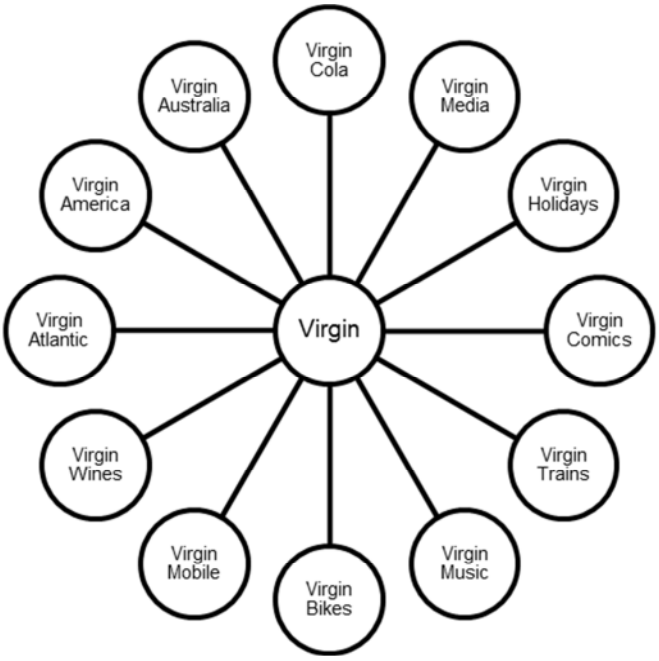


Figure 2.5-1 Compound and descriptive branding strategy adopted by the Virgin brand

Source: Argenti and Druckenmiller, 2004

The Virgin brand engages with customers constantly during their everyday activities, rather than just during an air travel journey, as with other airline brands. By adopting compound branding in this way, brand equity is gained cumulatively from the other sectors where the brand is applied.

Thus perception of the Virgin brand accumulates through its application in other sectors. The core values of the Virgin brand focus on five areas: fun, innovation, honesty, caring, and value for money. These core values are represented by Sir Richard Branson, the founder of the Virgin group (Argenti and Druckenmiller, 2004). The disadvantage of adopting a compound branding strategy can be seen when negative events associated with the brand in one sector damage the reputation of the brand where it is applied in another sector. Keller (1993) distinguishes between brand associations and secondary associations. Brand associations are related to the product or service, whereas a secondary association is not. Hence, when the Virgin brand is highly linked to the personality of Sir Richard Branson, any negative secondary associations related to this point of reference can negatively influence perceptions of the Virgin

brand. The Virgin Atlantic Airways example shows that the on-going interaction between the brand and customers helps them to become more familiar with the brand, and to form secondary associations that are different from those applied to other airline brands.

The descriptive and compound branding strategies adopted by Virgin Atlantic Airways, contrasts with the descriptive branding strategies adopted by other full-service carriers. The descriptive branding strategy adopted by full-service carriers and their low-cost carrier brands create confusion amongst parent and subsidiary brands, because the determinants for each airline brand are the same. The adoption of compound and descriptive branding by Virgin Atlantic Airways could also have created brand confusion, because in each sector the product is different. Hence, the determinant for airline choice would also be different. Although the benefits of each determinant may be different, the benefits that each determinant delivers are still consistent with the core values of the Virgin brand. The aim of airline branding is to deliver functional and emotional benefits to the identified target market segments. This may lead to an airline building brand equity.

Figure 2.5-2 shows that there are two types of brand equity: financial and customer-based. Customer-based brand equity examines how awareness of the brand and brand perceptions combines to create a differential outcome. In contrast, financial-based brand equity is the outcome of the customer-based brand equity; it shows the value of a brand on a balance sheet (Lassar et al., 1995). This research predominantly focuses on customer-based brand equity.

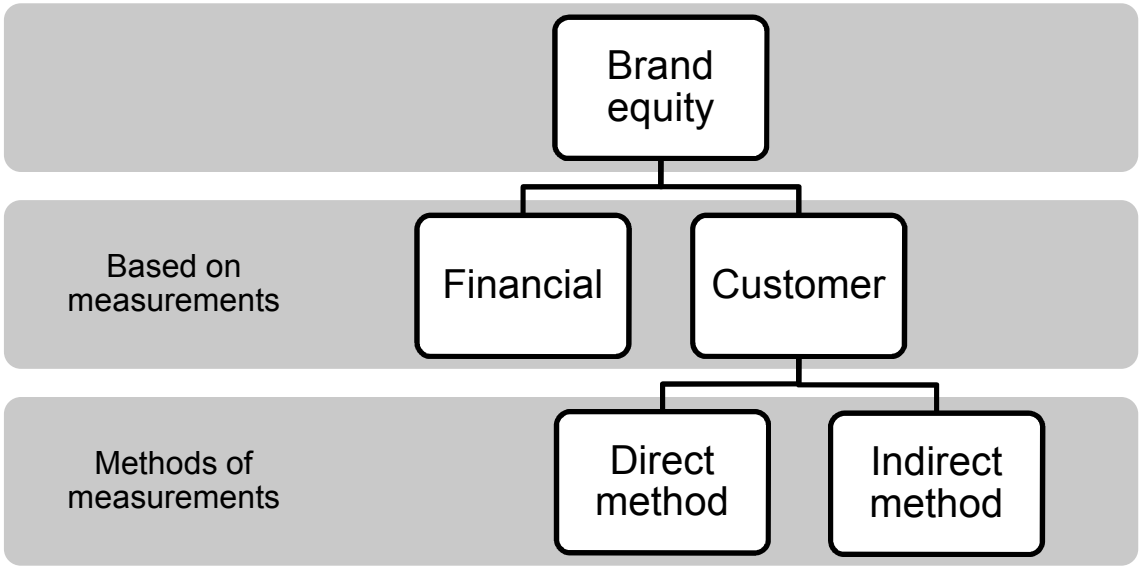


Figure 2.5-2 Types of brand equity

Source: Agarwal and Rao, 1996

Customer-based brand equity can be measured directly or indirectly (see Figure 2.5-2). The direct method focuses on outcome measures that are often used as brand strength indicators, such as willingness to pay, likelihood to recommend, market share and how the drivers behind these measures are a potential source of brand equity. The indirect method explores the potential sources of brand equity by examining how brand awareness and brand perceptions combine to create differential outcomes for the brand (Agarwal and Rao, 1996). The advantage of measuring brand equity from the customer perspective, using an indirect method, is that it allows airlines to identify customer perception of the brand, and to introduce suitable tactics and strategies in order to further build brand equity. In contrast, use of the direct method, which looks at outcome measures such as willingness to pay and market share, does not provide the same understanding, because these outcome measures, like market share, can be influenced by external factors that customers do not consider at the time of purchase or those that are beyond an airline's control (Cobb-Walgren et al., 1995).

There is no universal agreement about what customer-based brand equity is. However, each conceptual framework evaluates the concept by examining the relationships between each component and how it influences brand equity.

By investigating aspects that affect customer-based brand equity, airlines can understand how each part can affect consumer perception in comparison with competing brands (Gladden et al., 1998).

There are two conceptual frameworks of customer-based brand equity that have been applied in many sectors. Firstly, Keller's 1993 customer-based brand equity model is based on brand knowledge (Keller, 1993). This knowledge-based model consists of two parts: brand awareness and brand image. Keller (1993) demonstrates that brand equity is an outcome of having satisfied the prerequisite steps of both brand awareness and a positive brand image. Keller's customer-based brand equity model (1993) argues that brand awareness is a prerequisite in establishing brand equity. If a brand is not in the consideration set at the time of choosing an airline, other marketing activities such as advertisements for innovative products and promotions will be irrelevant. The second prerequisite is to achieve a strong, positive and unique brand image. Brand image can result from both direct experiences as a traveller, as well as information received by word of mouth promotions (Prasad and Dev, 2000). These two prerequisites suggest that brand equity can only be established after having satisfied both brand awareness and brand image sequentially in the minds of the target audience.

Keller's 1993 perspective suggests that it is satisfaction that encourages brand loyalty. In the case of the Ryanair brand, passengers have expressed dissatisfaction with the level of customer service provided (Barrett, 2004a), yet the airline is expanding rapidly, and has also gained market share against direct competitors like Aer Lingus. Similarly, the Air Asia brand, despite poor punctuality records, has also gained significant market share against its competitors, Malaysia Airlines (O'Connell and Williams, 2005).

The success of both the Ryanair and Air Asia brands may suggest that, despite poor air travel experiences, the brand value propositions of these two airlines are serving the needs of price-sensitive travellers. This helps them to create a powerful brand that attracts a large base of repeat customers.

Aaker (1996) provides a contrasting perspective to Keller. Aaker proposes that the structure of brand equity consists of brand awareness, perceived quality, brand associations and brand loyalty. He argues this because each sector is different. Therefore the importance placed on each component of the brand equity framework is also different. The relationship between the components of brand equity, for the restaurant sector, was examined by Kim and Kim (2005). This study examined the relationships between brand loyalty, brand awareness, perceived quality and brand image. Various authors have expressed similar perspectives in understanding the interrelationships between the components of customer-based brand equity. Kayaman and Arasli (2007) propose that customer-based brand equity consists of brand loyalty, perceived quality, brand image and the relationships between them. Lassar et al. (1995) similarly studied the interrelationships between brand awareness, brand knowledge, brand image and perceived quality.

Airline brand messages that focus on benefits similar to those of other airline brands (such as on-time performance and safety records) may not help to create a distinctive brand because other airline brands can also deliver and emphasise the same benefits. It is difficult to introduce a truly unique and differentiated product amongst airlines. Brand loyalty is a result of being able to meet the needs of each segment over a period of time (Choi and Chu, 2001). The difficulty in developing and delivering a unique brand value proposition arises from the difficulty that airlines have accessing the necessary resources and being constantly innovative (Hooley and Greenley, 2005). Resources are required to deliver on brand promises. In contrast, brand capability represents the knowledge of how to use available resources to deliver unique benefits that other airlines cannot provide. In the low-cost carriers' spectrum, many airlines have attempted to follow the low-cost model that Southwest Airlines started. Southwest Airlines' generic cost reduction strategy consists of:

- Single fleet type using only Boeing 737 aircraft, allowing the airline to reduce maintenance expense, while maximising expertise and familarity with operating this aircraft type.

- Focussing on flying point-to-point in order to maximise aircraft flying time.
- Use of secondary airports to minimise aircraft ground time, and maximise aircraft flying time.
- Use of direct channels of distribution emphasising call centres and airline websites rather than the use of travel agents (Vowles, 2001).

The unique success of the Southwest Airline brand resulted not only from adopting the tactics and strategies discussed above, but also from the efficient use of the airline' resources. This provided an insight into the business that led to an internal efficiency system consisting of operational and human resources and processes that other airlines could not copy (Gillen and Lall, 2004).

The Ryanair brand example demonstrates how the adoption of strategies initiated by Southwest Airlines has enabled the airline to minimise operational costs and offer low fares. This has helped Ryanair to expand and establish a large base of repeat customers which, in turn, has given the airline significant bargaining power with airport authorities, thereby further reducing their airport charges (Barrett, 2004b). Operating to secondary airports has given Ryanair accessibility to price-sensitive market segments that full-service carriers, operating from primary airports, do not have access to. Brand choices that offer items like airport lounges cannot easily reduce their costs in order to pursue price-sensitive market segments. This provides on-going advantages to Ryanair's brand, while expanding its customer base.

Airlines have attempted to provide visual clues to signal components of brand equity. For example, to indicate perceived quality, flight attendants' uniforms are designed to reflect each airline's positioning and service strategy. Whereas, logo displays on aircraft, showing membership of an airline alliance group (such as the Star Alliance), aim to communicate standard service consistency amongst member airlines (Tsantoulis and Palmer, 2008). Virgin Atlantic Airways has used its founder, Sir Richard Branson, in the airline's advertisements to indicate perceived quality, and the core values of the Virgin brand (fun, innovation and value for money) - values which also relate to the personality of Sir Richard Branson himself. This Virgin brand example illustrates

how the use of Sir Richard Branson, as a tangible cue signal to perceived quality, creates differentiations in both tangible and functional (products) and intangible/emotional differentiations. The use of Sir Richard Branson communicates unique value propositions that help Virgin to create distinctive brands in each industry, while also strengthening the brand as a whole.

The content of airline brand messages frequently makes associations with the culture and nationality of the airline's country of origin (Bruning, 1997). Singapore Airlines uses its iconic Singapore Girl in the airline's advertisements to promote the airline brand in terms of constant innovation and new service development (Heracleous et al., 2009). The iconic Singapore Girl is used in a similar way to Virgin's use of Sir Richard Branson - to enhance the perceived quality of its tangible products such as suites on board the Airbus A380 aircraft, luxurious first and business class and the design of the new economy class seats that feature the latest in-flight entertainment systems. In Singapore Airlines brand example, the Singapore Girl is used alongside the chosen theme of 'Romance of travel'. All of which combine to deliver a unique brand experience.

2.6 Conclusion

This chapter has reviewed the relevant literature and highlighted issues that airlines face when trying to establish brand equity. Airline brand value propositions are made up of the benefits that each airline passenger seeks from both (tangible) products and (intangible) services. Many airlines are increasingly adopting similar strategies (for example, price bundling). The difficulty in introducing products that are truly unique prevents airlines from distinguishing themselves from other competitors. This suggests the need for a strategic shift in how airlines differentiate themselves from others, and how they communicate these differences to airline passengers.

Airline branding has focussed on the needs of long-haul business travellers, while neglecting the needs of short-haul and leisure travellers. Many full-service carrier brands find it difficult to create a distinctive airline brand which distinguishes them from low-cost carriers. The infrastructures of full-service carriers consist of a wide range of products and services which they cannot easily abandon. Full-service carriers' brands have used these to attract a wide range of airline customers. However each airline product is not of equal importance. Thus, this research, aims to identify, from the customers' perspective, which airline products and services influence choice of airline brand the most. This will help airlines to introduce suitable brand value propositions that will not only meet the needs of airline passengers, but will also communicate differences from other airline brands.

Chapter 3 Methodology

The aim of this chapter is to provide an overview of the methodology used to answer the four research objectives.

1. To identify factors that affect airline brand equity;
2. To propose tactical and strategic approaches that may be adopted by airlines to build brand equity;
3. To determine size and profile of each market segment; and
4. To determine appropriate brand messages that appeal to each market segment.

Details of specific methods can be found in following sections.

- Section 3.1 will discuss the methodological approach chosen for this study. It will explain the rationale for adopting a mixed method approach.
- Section 3.2 will discuss how the data (qualitative and quantitative data) are analysed and validated.
- Section 3.3 will discuss how qualitative and quantitative data are combined in this study.
- Section 3.4 will discuss the research design. This section will identify the procedures adopted and the expected outcomes from each of the seven stages of this mixed method study.
- Section 3.5 will discuss the analysis plans of this mixed method study. In particular, sections 3.5.1 and 3.5.2 will discuss the analysis plan of the qualitative and quantitative parts respectively. Each plan will identify the information required in order to answer each research objective and how the data will be analysed.

3.1 Methodological approach

A mixed method research study is defined by (Creswell, 2007, p.5) as “a method, which focuses on collecting, analysing, and mixing both quantitative and qualitative data in a single study or a series of studies”. This thesis employs a sequential mixed method approach which prioritises quantitative methods. A qualitative approach was used initially, with focus groups, in order to gain an

understanding of the potential issues that influence airline brand equity and to understand how airline passengers perceive airline brands. Findings from the exploratory study were used to inform the design and to explain the overall findings of the questionnaire-based study. The findings of this study will enable airline brands to communicate specific messages that better meet the needs of passengers.

This mixed method study has seven stages.

1. Qualitative data collection
2. Qualitative data analysis
3. Qualitative findings
4. Development of instruments
5. Quantitative data collection
6. Quantitative analysis; and
7. Overall results and interpretation

Figure 3.1-1 shows the seven stages of this mixed method research. These seven stages fall into two categories: qualitative approaches (stages 1-3), and quantitative approaches (stages 4-7). In this mixed method study, the combining of qualitative and quantitative data occurs at both stage 4, where the findings of qualitative data help to inform the design of the quantitative section, and at stage 7, to explain the overall findings of this research.

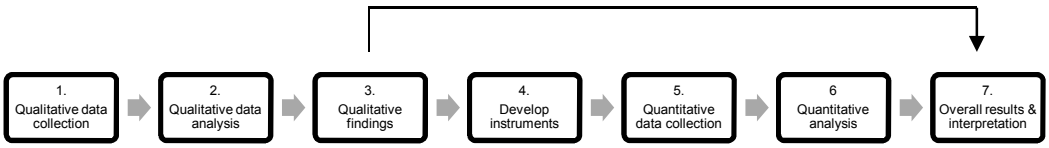


Figure 3.1-1 7 Stages in this mixed method study of airline brand equity

Source: Creswell, 2007

In the first, exploratory section, qualitative methods were deemed most suitable for gaining an understanding of the issues that influence airline brand equity. Four focus groups of business and leisure travellers participated in the inquiry. Focus groups were an important part of this research because interactions amongst participants produce insights about airline brands that other qualitative or quantitative approaches cannot capture (Blackston, 1995; Morgan, 1997). It was considered that the understanding gained from the rich qualitative data would enable airline brands to communicate highly targeted and specific information on functional (tangible) and emotional (intangible) benefits.

Because purposive sampling was used to identify the focus group participants, generalisation is not possible beyond the sample. However, in the segmentation study (which used quantitative methods), purposive sampling was used to select business and leisure travellers from a representative sample (using probability sampling). Generalisation to the broader population is therefore possible, in order to satisfy the objective of the segmentation study. In this study, population is defined as airline passengers in the United Kingdom, comprising those travelling for business or leisure purposes at least once over the preceding twelve months. In 2010 a total of 214,303,031 passengers departed all airports in the United Kingdom using scheduled and charter airlines (Civil Aviation Authority, 2010) .

The purpose of the second part was to generalise the understanding gained of influences on airline branding to larger populations. This was achieved by conducting a larger scale, questionnaire-based study using a representative sample of information-rich cases (business and leisure travellers) in the United Kingdom. The questionnaire contained 21 airline brand perceptions' measures, 24 attributes that represented airlines' general products and services and 10 attributes representing airlines' premium products and services (see Figure 3.4-1).

Airline brand equity changes over time. The use of airline product and service attributes in a quantitative, questionnaire based study enables airlines to detect changes in sources of airline brand equity. Quantitative research methods can identify segments of air travellers, and the benefits that each segment seeks from each airline's products and services. In the airline business where there is great product similarity, the use of a questionnaire-based study alone is likely to result in generic messages, because brand image cannot be captured. Instead, the use of a mixed method study maximises the advantages associated with qualitative, information-rich cases, while also enabling generalisations to be made to a broader sample. The quantitative method is also repeatable, enabling the monitoring of changes in airline brand equity.

The qualitative approach used in this study is based on a constructivist paradigm. It acknowledges that each person can interpret an idea differently, and it is possible for a subject to have more than one meaning. In contrast, the quantitative method is based on a post-positivist paradigm. Qualitative and quantitative methods are designed to achieve different purposes. Qualitative approaches are best used to explore and gain an understanding of a subject. Quantitative approaches are better used when testing relationships between identified variables or subjects. Both methods are highly interpretive. For example, while conducting principal component factor analysis each researcher may interpret the factors revealed differently.

In this sequential mixed method study the researcher has ensured that the collection and analysis of qualitative and quantitative data follows systematic

and verifiable procedures (Krueger and Casey, 2009). For example, during the analysis of the qualitative data, the researcher maintained dated and sequential memos to record the development of each idea. In the analysis of the quantitative data, while conducting the principal component factor analysis, the researcher explained that the communality score of 0.5 indicated that airline brand perception measures that contributes little to the structure of airline brand equity. Other researchers may use a different threshold level and reach a different outcome.

3.2 Data analysis and validation

In the first part of this study purposive sampling was used. Firstly, each participant had to satisfy the requirement of having travelled for either business or leisure-related reasons in the preceding twelve months. Secondly, the standardisation of each focus group was achieved by using a discussion guide (see Appendix C.1). The discussion guide was pre-tested to ensure that the questions were easily understood. Each focus group discussion was digitally recorded, allowing full transcripts to be made.

Because this study's emphasis was on quantitative methods in the second part, descriptive coding only was conducted in the first (qualitative) part, using full transcripts. The coding processes in qualitative and quantitative analysis have different purposes. In qualitative research, one of the purposes of coding is to initiate enquiry (Richards, 2009). The coding process will be discussed more in details in section 4.3. During this descriptive coding process, the researcher maintains a sequential and dated memo to record how ideas were developed over the course of the inquiry. This also serves as a trail of evidence as to how the researcher reaches each conclusion. Blackman and Koval, (2000) suggest that a coder's reliability measure, such as Cohen's kappa coefficient, is conducted to validate the coding process. Bazeley (2011, forthcoming) argues that this validation procedure is derived from a quantitative coding procedure which emphasises a singular meaning under each code. In qualitative research, the coding process changes over time, because as analysis progresses, the researcher's understanding increases (Richards, 2009). Consequently, coding

will change over the course of the research. Thus, the record of how the coding process develops in sequential and dated memos serves the purpose of verification for this research.

In the second part of this study, systematic and verifiable measures suitable for quantitative methods were applied. As with the pre-testing of a discussion guide, the questionnaire was pre-tested on both focus groups to ensure that the questions were understood and were unambiguous. Several tests were conducted to ensure that the findings would meet the aims of the research while also meeting the objective of being able to make generalisations beyond the sample. For example, before multivariate statistical analyses were conducted both probability and non-probability measures were used to test the Assumptions of parametric data. Additionally, when principal component factor, cluster and multiple discriminant analyses were conducted, several measures were implemented to ensure that the results are accurate. While principal component factor analysis was conducted, both Varimax and Oblimin rotation methods were attempted. The sample was also divided into analysis and validation samples. The ratio between each sample was 60:40. Principal component factor analysis was also performed in a separate analysis using analysis and validation samples. These measures were introduced to ensure that the factor solutions suggested were stable and reliable. When cluster analysis was conducted, both hierarchical and non-hierarchical methods were used. The hierarchical method was used first to explore the clustering process, while the non-hierarchical method was used next to identify the optimal cluster solutions.

3.3 The integration of qualitative and quantitative data

The outcome of the focus group analysis was used to guide the structure of the questionnaire. This questionnaire was used to collect assessments of airline brand perceptions and product importance.

The findings from the exploratory study were used to further explain the principal components that represent the structure of airline brand equity (section

5.8.2), clusters of airline brand perceptions (section 5.9.4), the dimensions that distinguish between airline brands (section 5.13), and the dimensions that distinguish between the clusters of airline brand perceptions (section 5.15).

Figure 3.3-1 displays the sequence of the multivariate analysis framework: principal component factor analysis, cluster analysis and multiple discriminant analyses that were used in the second part of this study.

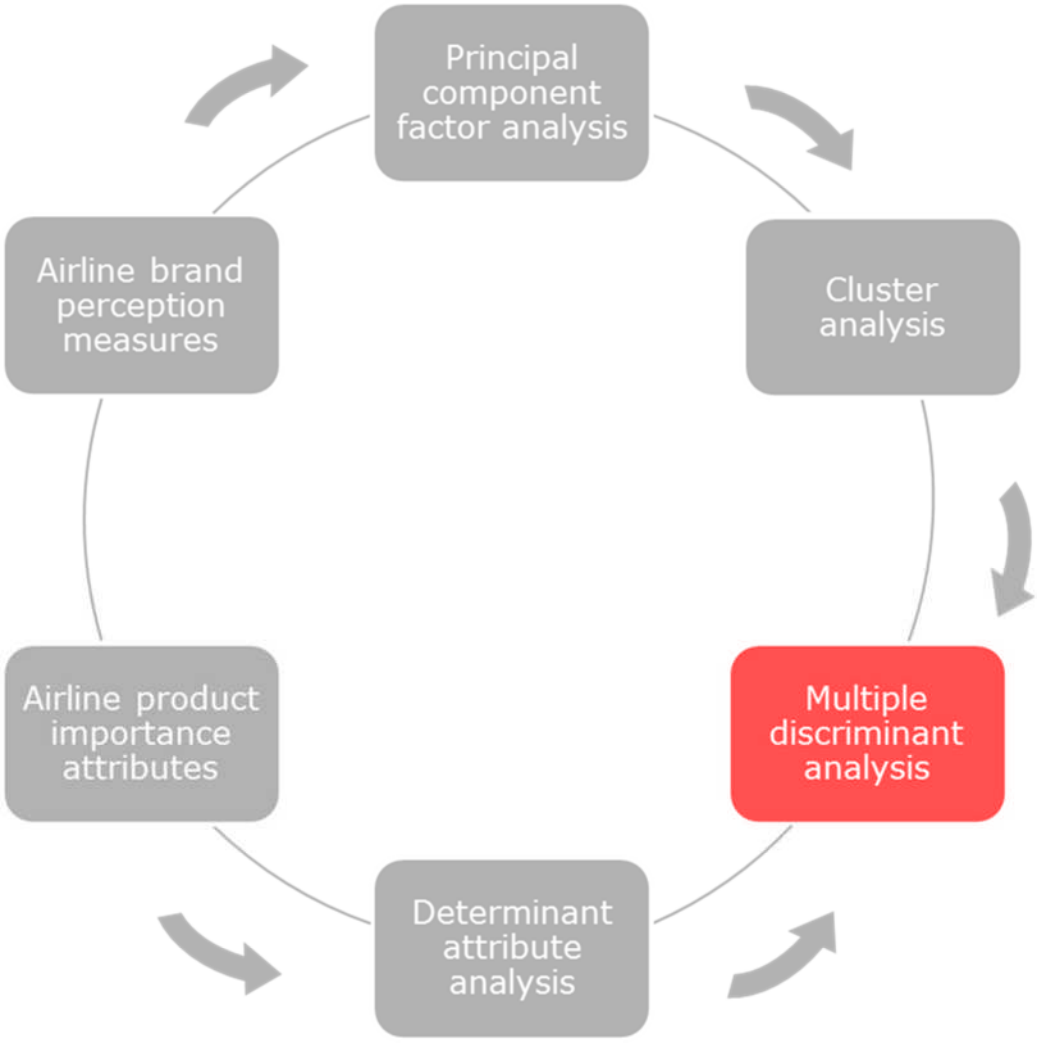


Figure 3.3-1 Multivariate statistical analyses framework

3.4 Research design

Figure 3.4-1 shows the seven stages of this sequential mixed method study. The procedure that took place at each stage and the expected outcome at each stage is identified.

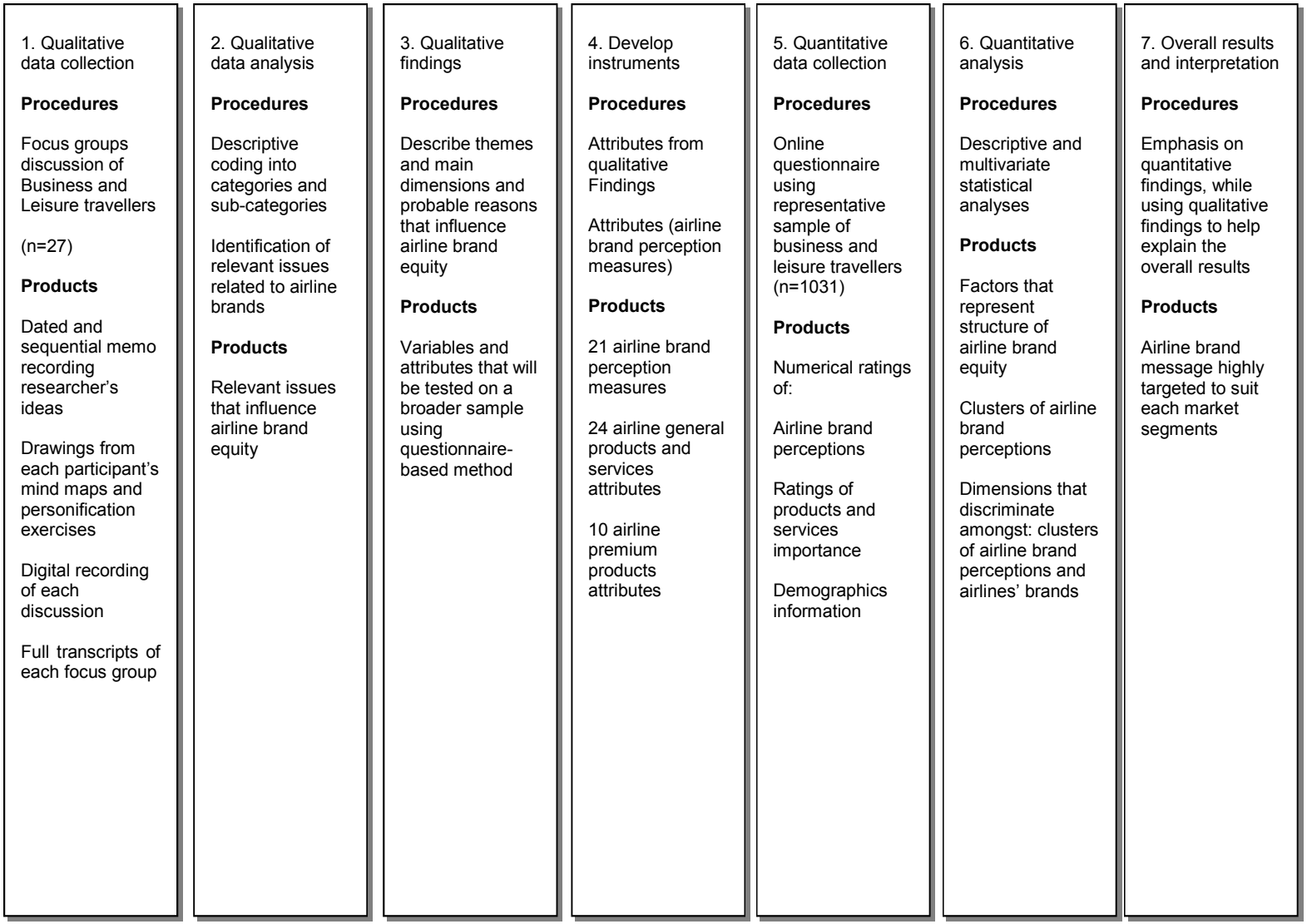


Figure 3.4-1 Research design stages

3.5 Analysis plan

3.5.1 Part I – qualitative data

The analysis plan for Part I of this mixed method study identifies the *purpose* of, and the *objective* for, the exploratory study. The plan suggests that the data required during this part of the study are business and leisure airline passengers' views and perceptions of airline brands. The analysis plan identifies the analysis procedure, which states that descriptive coding will be conducted using the full transcript of each focus group discussion. The expected *outcome* of the Part 1 inquiry is the identification of the probable factors that influence airline brand equity. This is illustrated in Table 3.5-1.

Table 3.5-1 Analysis plan – Part I qualitative data

Purpose:	**Objective:** **Information needed**	**Data required**	**Analysis procedure**	**Outcome**
What are the relevant issues influencing airline brand equity?	To identify the structure of airline brand equity	Part I: Qualitative research in focus groups of business and leisure travellers to obtain their views and perceptions of airline brands.	Using full transcripts from focus groups Descriptive coding arranging ideas into categories and sub-categories	Relevant issues that influence airline brand equity.

3.5.2 Part II – quantitative data

Table 3.5-2 shows the analysis plan for the quantitative part of this research. The analysis plan not only identifies the data needed in order to answer each research objective, but also identifies how each question asked in the online questionnaire (see Appendix H) is related to each research objective. The analysis procedure and expected outcome are also identified.

Table 3.5-2 Analysis plan – Part II quantitative data

Purpose:	Objective: Information needed	Data: Items from the questionnaire	Analysis procedure	Outcome
What are the sources of airline brand equity?	To identify factors that affect airline brand equity	Q7.1 - Q.7. 21 Assessments of airline brand perceptions	Principal component factor analysis	Principal components that represent structure of airline brand equity
			Cluster analysis using factor scores from conducting the principal component factor analysis.	Clusters of airline brand perceptions
How can airlines build brand equity?	To propose tactical and strategic approaches that may be adopted by airlines to build brand equity	Determinant attributes analysis : To assess product and service importance **Part A**: Q.8.1 - Q.8.21 (Product similarity to competitors' brands) **Part B**: Q9.1 – 9.21 (Product importance: degree of influence at time of buying) Determinant attribute score for each respondent on each product item**: A * B** Q.11.1 – Q.11.10 Use of airlines' premium products and services Q12.1 – Q12.10 Degree of influence of premium products	Multiple discriminant analysis (MDA): stepwise method. MDA1 uses airline brands as dependent variable. Airline product and services determinant attributes as independent variables. MDA2: uses clusters of airline brand perceptions as dependent variable. Airline products and services determinant attributes as independent variables.	Most influential determinant attributes that distinguish between airline brands (from MDA1), Most influential determinant attributes that distinguish between clusters of brand perceptions (from MDA2).
How big is each market segment?	To determine the size and profile for each market segment	Age (QS1) Gender (QS2**)** Business trip frequency (QS3)	Using clusters of airline brand perceptions, and demographics information	Cluster of airline brand perceptions and identification information

Purpose:	Objective: Information needed	Data: Items from the questionnaire	Analysis procedure	Outcome
		Leisure trip frequency (QS4) Who chose airlines for leisure trips? (Q1) Who chose airlines for business trip? (Q2) Class of on-board travel (Q3) Brand awareness (Q4) Airline most like to fly (Q5) Likeliness to recommend 'most like to fly' airline (Q6) Leisure trip frequency – short haul (Q13) Leisure trip frequency – long haul (Q13) Business trip frequency - short haul (Q13) Business trip frequency - Long haul (Q13) Employment/Working status (Q14) Organisation size (Q15)		
How can airlines communicate branding messages to different target markets?	To determine appropriate advertising and communication messages that will appeal to each market segment.	From Part I: Qualitative method in four focus groups From Part II: Outcome of multiple discriminant analysis	Findings from an exploratory study in focus groups and multiple discriminant analysis	Recommendations that can help airlines to establish brand equity.

Chapter 4 Exploring relevant issues of airline brand equity

In chapter 3, the methodology adopted in this study, to answer the four research objectives, was identified. This mixed method study on airline brand equity has two parts. The aim of this chapter is to discuss the procedures that were implemented and the subsequent findings of the first part which used focus groups to explore the perceptions of business and leisure travellers.

This chapter comprises six sections:

Section 4.1 will identify the aim of the exploratory part of this research.

Section 4.2 will discuss how the focus groups were conducted. This includes the recruitment process (section 4.2.1), the structure of the focus groups and how they were conducted (section 4.2.2), and the role of the focus group moderator (section 4.2.3).

Section 4.3 will discuss how the qualitative data collected from focus groups was analysed.

Section 4.4 will discuss the findings and the implications of this exploratory study.

Section 4.5 will summarise the findings of the exploratory study.

Section 4.6 will identify the limitations encountered while conducting this exploratory research and how these were overcome.

4.1 Aim

In order to explore and understand relevant issues that influence airline brand equity and to compare differences between business and leisure travellers, four focus group discussions were conducted. Purposive (non-probability) sampling, including information-rich cases of business and leisure travellers, was utilised. This approach to sampling was deemed suitable because there was no intention to generalise from these data. The use of probabilistic sampling could have resulted in the inclusion of participants who did not constitute information-rich cases which could, in turn, have distorted the data. Each participant was required to have travelled on a low-cost carrier and a full-service carrier at least once in the preceding twelve months. This was to ensure that each participant had relevant and comparable air travel experience.

4.2 Focus group

4.2.1 Recruitment of focus group participants

To find qualified participants, recruitment notices were placed in two local newspapers: *Milton Keynes Citizen Go* and the *Bedfordshire Times & Citizen*. The notices were also reproduced online at www.bedfordtoday.co.uk. The recruitment notices is reproduced in Appendix A.1).The recruitment process was difficult. The difficulty arose in finding participants who could satisfy both conditions. Also many participants withdrew because of the lack of significant financial incentive.

Snowballing sampling was also used. A few participants asked if their friends or co-workers could also participate in the study. During the recruitment process, these participants had to satisfy the same requirements as others. Snowballing was not the main sampling method used and bias from using this sampling method is small (Robson, 2002).

Two focus group discussions involving leisure travellers took place on the 20th and 27th of October 2009, with eight and five participants respectively. Another two focus group discussions with business travellers took place on the 2nd of March and 17th of May 2010, with six and eight participants respectively.

The scheduling of the focus groups was affected by the industrial actions of British Airways and the Iceland volcanic eruptions. Airport closure affected many focus group participants. This meant that the two groups of business travellers had to be rescheduled and more participants had to be recruited. It was important to reflect this reality as much as possible. To ensure that balanced views were presented the focus group moderator encouraged participants to talk about the positive and negative aspects resulting from the disruptions.

4.2.2 Focus group structure

The standardisation of each focus group was achieved by using a discussion guide (see Appendix C.1) which provided a logical sequence of discussion for each focus group. The guide was drawn up using Keller's (1993) customer-based brand equity model. This model emphasises brand awareness and brand knowledge. This knowledge-based model is similar to Aaker's (1996) brand equity model which emphasises brand awareness, perceived quality, brand associations, proprietary assets and brand loyalty. Both Keller's and Aaker's models recognise how brand awareness and brand perception combine to create a differential outcome.

The discussion guide was tested on postgraduate students at Cranfield University on the 3rd of July 2009. The aim of the trial was to test whether the questions could be understood and whether the question sequence was appropriate. These students were not information-rich cases (business and leisure travellers), but they had reasonable amounts of air travel experience as passengers. This was deemed satisfactory for the purpose of the trial.

Each focus group discussion had four parts. This was reflected in the four sections of the discussion guide. In the first part, introductory information was provided and the aim of the focus group was explained. It was emphasised that participation in the group was voluntary. Participants were encouraged to stay until the discussion had ended. Questions were open-ended. The content of the questions was strictly related to air travel and branding issues. No other confidential or sensitive material was discussed. The role of the moderator was

explained and interaction between the participants was encouraged. Digital recording of the focus group began after the moderator received permission from the participants to record (see Appendix B). Participants were informed that this research formed part of an academic research project for the moderator's PhD.

In the second part of the focus group discussion, after the general introduction was given, the focus group started with unaided and aided brand-recall exercises about airline and non-airline brands. The aim of this exercise was to stimulate memories of participants' brand experiences and impressions that they may have about those. In the unaided brand-recall exercise, participants were asked to name any airlines that they could think of. In the aided brand-recall exercise, participants were asked to name low-cost carriers and full-service carriers that were not mentioned in the unaided brand-recall exercise. Definitions of low-cost carriers and full-service carriers were not given, because the aim was also to find people's points of difference about airlines. In the recall exercise of non-airline brands, participants were asked to name other brands that they could think of in other sectors. In the general, aided brand-recall exercise, participants were asked to name brands from the financial sector. The brand awareness of each participant was recorded on a flipchart. The flipchart gave a visual clue to the participants for the next part of the discussion.

The third part of the focus group discussion explored the participants' positives (likes) and negatives (dislikes) in relation to the recalled brands. In this part, a mind map exercise was also used (see Appendix C.2). The aim of this exercise was to explore brand associations. Each participant was given two pre-drawn maps of two brands, British Airways and Barclays Bank, and asked to write down words that they associated with each brand. These two brands were chosen because they both have a significant presence in the local market (Clarke, 2000). Barclays brand provides financial services. The financial sector was chosen because of its high degree of visibility in the market (de Chernatony, 1993). It was expected that participants would have a degree of awareness of brands from this sector and would all have a certain degree of involvement with this sector as a customer. The brand from the financial sector

was chosen to compare against airline brands because both sectors provide a service and are adopting similar strategies. Both sectors are increasingly unbundling their products and services (Heracleous et al., 2009). This means they charge for each part of their product or service individually. Participants were given about five minutes to complete this exercise. This short time-frame reflected the aim, which was to capture the strongest associations that people have with these two brands. They were then asked to share their answers with the group.

The focus of the fourth part of the focus group discussion was to discover deeply held brand associations in relation to British Airways and Barclays. A projective technique in a personification exercise was used (Keegan, 2009). Each participant was given a pre-drawn outline figure and asked to describe British Airways and Barclays as a human (see Appendix C.3). Some participants found this personification exercise difficult. As mentioned during the focus group introduction, interactions between participants were encouraged. In one of the focus group discussions, a participant volunteered to explain how this exercise might work using Ronald McDonald, an iconic cartoon character who represents the McDonalds fast food restaurant chain. This example, led by a focus group participant, helped others to overcome their difficulties. Focus group participants were given ten minutes to complete this exercise. This gave them time to reflect on the two brands and record their responses on the pre-drawn figure provided. Afterwards, they were asked to share their answers with the group.

4.2.3 Role of moderator

The moderator played an important role in facilitating focus group discussion and encouraging interaction between the participants. After each participant had expressed their views the moderator asked probing questions such as: '*Can you give me an example*?'; '*I am not quite sure about that: what do you mean?*'; *'Does anybody have something similar?'*; (participant x) – *how do you respond to that claim?'*. Asking probing questions helped to clarify the responses. Such understanding helped participants to interact more effectively

and reduced any ambiguity and subjective interpretation of information during analysis.

During the focus group discussions, the moderator ensured that every participant received an equal chance to express his or her views. To prevent group conformity, the moderator also asked quieter participants if they agreed or disagreed with other participants' responses. For example, *'I have not heard from you in a while: have you experienced something similar to* (participant x)'? Such probing was important, because silence or non-response did not necessarily mean that the issue was irrelevant or unimportant (Ritchie and Lewis, 2003). All participants were qualified to take part, because they had satisfied the established conditions for information-rich cases. To ensure balanced views were being presented to the group, the moderator encouraged participants to talk about both positive and negative aspects of the brands. Obtaining balanced views was important because each participant's responses influenced other participants' views and the dynamics of the group (Krueger and Casey, 2009).

4.3 Qualitative data analysis

Each focus group discussion was recorded digitally and fully transcribed. Mistakes such as incorrect naming, pronunciation of brands, and incorrect grammatical expression were not corrected, the aim of full transcription being to account for the participants' actual delivery as much as possible. These full transcripts were important during analysis, especially in establishing categories, sub-categories, and concepts (Hahn, 2008; Krueger and Casey, 2009).

The analysis of the qualitative data started with descriptive coding. This is the most basic level of coding. Ideas from each transcript were placed into initial categories. Examples of these descriptive categories included: on-board products (seat comfort, airport lounges, in-flight entertainment); staff skills (professionalism, courtesy and manners, grooming, problem solving skills): point of difference (nationality, iconic features); source of information (word of mouth promotions, advertisements, online sources). For example, ideas relating

to on-board entertainment were placed into the 'on-board product' category, and the 'in-flight entertainment' sub-category. Parallel coding was also performed, because some ideas were applicable to more than one category or concept. For example, responses like '*I would never pay for that (on-board entertainment), it is way too expensive'* were placed in the 'value for money', and 'on-board product' categories.

During the analysis, the researcher kept a sequential and dated memo to record how understanding of the ideas developed over time. The researcher analysed the data with the assistance of Nvivo8, a software product for qualitative data analysis which facilitates comparison across categories, sub-categories and concepts and relationships amongst them. Categories were arranged into a hierarchical classification system which reflected the structure of the data. Nvivo8 helped to manage the large amount of qualitative data created by using full transcripts, and maintaining dated and sequential memos to record ideas and reflections. This also enabled the researcher to gain greater familiarity with the data and relationships between the ideas.

4.4 Qualitative findings and discussion

4.4.1 Brand awareness

The strongest secondary associations that focus group participants (both business and leisure travellers) have with airline brands are closely related to their knowledge about the country of origin of the airline. For example, the strongest secondary association that people have with the British Airways brand related closely to English culture, i.e., courteous service, and efficiency. However two other English airline brands - Virgin Atlantic Airways and Laker Airways - invoke associations different from those of the British Airways brand. The secondary associations for Virgin Atlantic and Laker do not relate to English culture, but instead relate strongly to the personalities and activities of Sir Richard Branson.

Laker Airways also used Sir Freddie Laker in its advertisements. This airline has ceased operations, but this airline brand remains distinctive and memorable

for some participants in the focus groups. Both Branson and Laker have been used in airlines' advertisements to communicate relevant strategies that play a part in delivering unique brand value propositions that each airline brand aims to deliver. For example, Laker Airway's brand value proposition emphasised low fares and friendly services – a unique combination of benefits that significantly influenced airline choice. Similarly, the brand value propositions of Virgin Atlantic Airways represent a combination of innovative products (such as an in-flight beauty therapist service) and are delivered using fun themes. Both Laker Airway's and Virgin Atlantic Airway's brands have consisted of an influential combination of benefits that helped each brand to deliver unique value propositions.

Brand awareness is the first prerequisite that determines whether or not an airline is in the consideration set. The points of difference that focus group participants (both business and leisure travellers) perceive in airline brands serve as a recognition clue that triggers travellers' brand awareness. Airplane liveries and other visual clues used in airlines' advertisements, not only trigger their brand awareness, but also the secondary associations that they have of airlines. The initial secondary association must not only be positive, but should also lead to other features that influence airline choice.

The perceived point of difference amongst airline brands reflects the messages used in airline advertisements and the strategies that the airline adopts. Airlines' advertisements are often associated with the cultural heritage of the airline's country of origin, good customer service and on-board products. Secondary associations such as high standards of engineering, safety standards and customer service are important parts of what airlines offer, but they are not the main factors that travellers consider when choosing airlines. This is because safety standards are similar. Airline brand messages that emphasise these aspects may not help to distinguish airline brands, because many airlines use these themes regularly. Instead, brand messages that emphasise an airline's unique and useful strategies help consumers to distinguish that airline from

others that focus on generic themes. This is because the message communicates the benefits that are relevant to their air travel.

4.4.2 Brand message

Business travellers rank the benefits gained from using tangible products, such as exclusive airport lounges and dedicated check-in desks, as being most influential in airline choice because such benefits offer greater convenience and significantly reduce time spent at airports. Business travellers also appreciate additional facilities provided to higher-tiered frequent flyer members, such as unpublished reservation phone lines and guaranteed seat availability, because it shows that airlines recognise their loyalty. Business travellers express strong views that luxurious products in business and first class are unnecessary. Luxurious products such as on-board suites represent unrealistic value for the high price charged. This means that airline brand messages aimed at business travellers need to highlight value for money benefits from suitable tangible products.

Leisure travellers choose low-cost carriers not only because of low fares, but because of the convenience of using secondary airports. Secondary airports offer fewer amenities, yet these facilities are sufficient for leisure travellers' needs. Secondary airports are less congested than main airports. The lack of congestion helps to reduce time completing airport formalities such as check-in and security checks.

However leisure travellers do not like flying low-cost carriers because of greater difficulties with access to secondary airports (they are often located far from city centres), and because secondary airports often have inconvenient flight schedules. This indicates that, in order to appeal to leisure travellers, full-service carriers' brand messages need to emphasise the benefits of using main airport gateways, such as easy transportation to the city centre and high flight frequency, offering greater flexibility. In contrast, low-cost carriers which already focus on providing limited products and low fares can also highlight the time saving benefits and the convenience of using secondary airport gateways.

4.4.3 Brand response

Business and leisure travellers do not understand airline brand messages about product and pricing information. Many airlines are increasingly selling each part individually and the airfares are not inclusive of other services like baggage, check-in and date-change fees. Business and leisure travellers do not understand what they are paying for. Neither business nor leisure travellers see the benefits that airline brands are promising.

Full-service and low-cost carriers once adopted different strategies. Both types of airlines are now adopting similar strategies. The strongest secondary association that people have with each type of airline is different. Airlines adopting the same strategy could lead to different outcomes. While both business and leisure travellers perceive it as acceptable for a low-cost carrier to charge extra for a service such as a ticket date-change fee, a full-service carrier charging for the same service would be regarded unfavourably because people's secondary associations with each type of airline are still different.

Business and leisure travellers' strongest secondary association with the British Airways brand relates to English culture, and courteous service. British Airways adopts a multiple branding strategy consisting of a corporate brand and sub-brands. These favourable secondary associations are consistent with the airline's corporate brand message which emphasises Englishness, and high levels of customer service. In contrast, the deeply held secondary associations related to the British Airways brand are negative, reflecting poor value for money from the airline's bundling strategy and outdated products.

The contradiction between the initial secondary brand associations that are positive and the deeply-held brand perceptions that are strongly negative explains why business and leisure travellers do not clearly understand the content of airline brands. This represents a challenge for airlines adopting multiple branding strategies, because they have to ensure that travellers have desirable perceptions of each sub-brand and that these perceptions towards the sub-brands are also consistent with the message that the corporate brand communicates. In contrast, airlines that adopt descriptive branding, such as

Qantas, Jetstar Airways, Singapore Airlines, Silk Air and Tiger Airways, demonstrate the flexibility which allows each descriptive brand to communicate a different message and deliver different value propositions to serve each target segment.

4.4.4 Airline brands to deliver a differentiated experience

Both business and leisure travellers perceived the general standard of service as poor. This is attributed to the rise in electronic and automated service systems like self-web check-in or the use of airport kiosks and online bookings, which has lead to fewer face-to-face contacts between airlines and passengers. The automated system gives confident internet users more flexibility when searching for information and the ability to personalise their air travel, including being able to buy tickets through airlines' websites, perform online check-in and choose their own seats before arriving at the airport. In contrast, less confident internet users perceive online activities to be difficult, and prefer interacting with airline staff.

Business travellers appreciate dedicated services and facilities that are available exclusively to them such as helplines offered to higher-tiered frequent flyer members. This exclusive service is seen to be a recognition of business travellers' loyalty to the airline. Although business travellers do not always use this premium service, it gives them an assurance that the service is available to them when they need it the most. This additional service is useful because business travellers emphasise that there is a severe lack of help from airline staff in resolving customer issues such as flight disruptions and the mishandling of baggage.

Leisure travellers are different because price is the most influential attribute in their choice of airline. Tangible products influence airline choice little. Service is the most influential, non-price related attribute for airline choice, but service is still less important for short trips. These examples illustrate why it is difficult for full-service carriers' brand messages to communicate suitable brand value propositions that not only appeal to leisure travellers, but also distinguish the full-service carriers from low-cost carriers. The examples demonstrate how low-

cost carriers are able to establish a base of repeat customers), because their brand messages focus on suitable value propositions for leisure travellers, emphasising low fares rather than seeking benefits from tangible products and services.

The challenge for airlines to present a differentiated experience is two-fold. Firstly, when an airline focuses on selling online, it reduces the emphasis on its customer service staff. However, confident internet users will enjoy the benefits of having more flexibility in gaining airline-related information, comparing airfares, and buying only what they need.

Secondly, non-confident internet users dislike this way of selling, as it means they have to pay higher prices for the same product and they still require help from the airline's customer service staff. Amongst these non-confident internet users, it is the service that airline staff provide that delivers a differentiated experience. This means that heterogeneity and inseparability (as discussed in chapter 2) are still main reasons that distinguish airline brands from other tangible goods. Training for frontline staff to provide good customer service is therefore still an important source of intangible differentiation, especially amongst non-confident internet users. For example, Southwest Airlines emphasises both online service (internet) and offline selling, because it believes that human communication and interaction between frontline staff and passengers is a potential source of tangible differentiation. Thus it is important that staff training programmes ensure that staff can provide good and consistent service to customers.

4.4.5 Airline brands information: implications for channels of distribution

Leisure travellers' impressions of airline brands come from their own direct experience, word of mouth from friends and information through other forms of media such as newspapers and television programmes. Business travellers also gain air travel-related information from travel management companies and websites such as seatguru.com. The content of information displayed on

external websites is beyond airlines' control, yet it can still influence buyers' impressions of airlines.

When business travellers cannot get the information they need or when planning for a complicated itinerary online themselves, they will use corporate travel management companies. This means that the choice of airlines is being influenced by another source that could be outside airlines' control. Many airlines are still relying on travel management companies as an intermediary but such companies may not be able to provide full and accurate information about each airline. Their level of familiarity and airline-specific information may be inaccurate. Business travellers recognise that there are still small, yet significant, differences among airlines. For example, many business class seats convert to flat-beds, yet only a few airlines truly offer a flat bed. This means that although airline brands communicate similar benefits, business travellers can still identify small differences amongst the benefits provided by each airline. If travel agents give out wrong product information this will lead to brand information being communicated incorrectly.

4.5 Conclusion

The aim for this part of the study was to identify and understand the relevant issues that influence airline brand equity. The exploratory study, using focus groups of business and leisure travellers, shows that the secondary associations with airline brands relate to the nationality or the cultural cues that are frequently used in airlines' advertisements. These intangible cues help to trigger *brand awareness* and each airline's brand value propositions. When these intangible cues trigger generic benefits (such as those from core products and essential attributes like safety records and flight punctuality performance) they do not enhance the distinctiveness of airline brands, because other airline brands also emphasise these attributes. In contrast, if those intangible cues trigger unique brand value propositions that cannot be provided by other airline brands, this will enhance the distinctiveness of the airline brand. This is demonstrated in Figure 4.5-1.

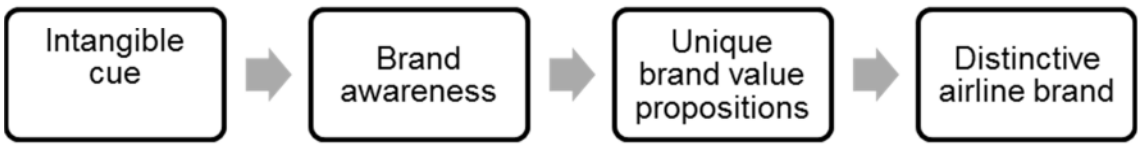


Figure 4.5-1 Role of airline brands' secondary associations

The secondary association of each airline brand is different. This is illustrated by the fact that, although two airlines may adopt an identical strategy, brand

response may still be entirely different. Additionally, if an airline brand conveys similar messages to other airline brands, it will not be distinctive.

This exploratory study has compared full-service and low-cost carrier brands. Low-cost carriers emphasise price. Amongst the most price-sensitive travellers, it is low fares that encourage repeat purchases. This is because price-sensitive travellers place little emphasis on airlines' tangible products and services. For instance, despite poor service, there are still passengers who are willing to fly with low-cost carriers. In contrast, for full-service carriers who emphasise products and services, it is the satisfaction of using these facilities that encourages loyalty from users of the full-service carriers' brand.

4.6 Limitations

The recruitment notices were placed in two local newspapers: *Milton Keynes Citizen Go* and the *Bedfordshire Times & Citizen*. These two newspapers were distributed to households in the Bedford and Milton Keynes areas. The recruitment notice was also available online at www.bedfordtoday.co.uk. The focus group discussions took place at Cranfield University. Many participants came from locations near Cranfield University. Airports located near Cranfield are Luton, Birmingham and East Midlands. Participants' views may have been more closely linked to their experience of air travel operated by airlines using these airports.

Purposive and snowballing sampling methods were used. Quantification was not intended. Results and findings from this part of the research are not to be interpreted numerically. The use of purposive sampling in recruiting business and leisure travellers means that it is not known whether the views expressed in the four focus groups represent the views of a larger population.

During qualitative data analysis, a dated and sequential memo was maintained. The ideas that developed during the descriptive coding process were recorded. Generalisations are not intended. However, the transferability of ideas reported is encouraged to be taken into account alongside the ideas recorded in the memo (Krueger and Casey, 2009).

The initial plan was to have separate focus groups of business travellers from small and large organisations, because they often have a different travel policy (Fourie and Lubbe, 2006; Mason, 2000). The difficulty in recruiting meant there were not enough business travellers from various organisation sizes to take part inform separate focus groups. Business traveller participants came from small and large organisations and some were owners of small businesses in the Milton Keynes area, but they were combined in the groups. Therefore, a wide range of views from business travellers was collected. The initial plan was also to have separate groups of male and female travellers, because female business travellers often have different needs. The market for female business travellers is also increasingly important (Westwood et al., 2000). The difficulty in finding interested participants meant that this was not possible.

The qualifying criteria for information-rich cases requiring participants to have travelled with low-cost carriers and full-service carriers at least once over the preceding twelve months may not have been enough to discriminate between business and leisure travellers. For example, business travellers taking one hundred flights per year are likely to have different perspectives on airline brands than business travellers who have taken a lesser number of flights, because their level of engagement with airline brands could be different. This limitation will be remedied in the second part of this research. In the questionnaire-based investigation of brand equity, probability sampling will be used to attract a representative sample of business and leisure travellers. Information such as trip frequency will be collected.

It was suggested that this research also include non-users. This was not possible because of the intensive nature of the focus group discussion. Asking those who are not flying to come to Cranfield was not a realistic or practical request.

4.7 Building on the strengths of qualitative methods in a sequential mixed method approach

The recruitment of focus group participants was based on purposive sampling, a non-probabilistic sampling method. This sampling method serves the purpose of the exploratory part of this research. Business and leisure travellers who participated in focus groups also travel for the opposite reasons. It was pointed out that difficulty arose when recruiting business travellers from larger organisations.

In the next part of the study, probability sampling will be used to identify qualified participants. The sample will attract an equal number of business and leisure travellers that will allow generalisations to be made to the larger population. Business travellers will also come from both small and larger organisations, because organisation size is linked to their travel policy, which in turn influences airline choice.

One limitation is how some participants have qualified on purposive sampling method. Business travellers also qualified to participate as leisure travellers and vice versa It was also not possible to recruit business travellers from larger business organisations. In the next part: the aim is to attract an equal number of those that are qualified as leisure or business travellers. The aim is to attract business travellers of different employment status, and those that come from various sizes of organisations

4.7.1 Data required

The conclusion of the exploratory study suggested the attributes that are required to be tested on the broader sample in the segmentation study, using a questionnaire.

4.7.1.1 **Travellers' information**

- Who chose airlines for business trips?
- Who chose airlines for leisure trips?
- Working status
- Size of organisations (number of employees)

- Nationality
- Gender
- Age
- Residence (location of residence)
- Trip purpose
- Short-haul business trip frequency
- Long-haul business trip frequency
- Short-haul leisure trip frequency
- Long-haul leisure trip frequency
- Class of on-board travel during most recent trip

4.7.1.2 **Brand related information**

- Airline brand awareness
- Airline brand perceptions
- Airlines most like to fly with
- Likeliness to recommend (the airlines most like to fly with)

4.7.1.3 **Perceived similarity and importance of airlines' products and services**

- Frequent flights to destinations
- Convenient flight schedule
- Availability of non-stop flights
- On-time baggage delivery upon arrival
- Advance seat selection
- Free tickets from frequent flyer programme
- Internet check-in
- Up-to-date aircraft
- Personal on-board entertainment
- Seat space
- Meal service
- Complimentary newspapers

- Physical appearance of employees
- Close attention by cabin crew
- Cabin crew's ability to answer questions
- Employees who are willing to help passengers
- Courtesy of employees
- Employees who have the knowledge to answer questions when things go wrong
- Sincere interest in solving problems
- Adequacy of information on airlines' websites
- Ticket purchase opportunity via Internet
- Availability of airline website on the internet
- Price
- Value for money

4.7.1.4 **Perceived importance of airlines' premium products and services**

- Complimentary newspapers
- Free tickets from frequent flyer programme
- Priority reservation line
- Exclusive check-in desk
- Priority boarding
- Exclusive airport lounge
- On-board amenity kit
- Priority deplaning
- Fast-track immigration
- Priority bag delivery
- Arrival lounge

Chapter 5 Segmentation study of airline brand equity

In chapter 4 qualitative methods were used in order to gain an understanding of relevant issues that may influence airline brand equity. The findings of this exploratory study have helped to inform the structure of the second part of this study.

In this part of the research, airline brand equity is investigated using a segmentation study. An online questionnaire was used as a tool to gather data from a representative sample of business and leisure travellers in order to understand sources of airline brand equity. The aim of this quantitative-based study of airline brand equity is to be able to make generalisations to the broader population of airline passengers.

The chapter begins by explaining the process of conducting a questionnaire-based investigation of airline brand equity using an online questionnaire. This includes pre-testing of the questionnaire, and outlining improvements that were made in the construction of the actual questionnaire used. The process of conducting multivariate statistical techniques such as factor, cluster and multiple discriminant analyses is also explained.

5.1 Aim

The aim of this segmentation study is to assess airline passengers' perceptions of airline brands, and to determine which airline products and services influence their choice of airline brand the most. The population of this study was already identified in section 3.1, as airline passengers in the United Kingdom who had travelled by air for business or leisure purposes at least once over the preceding twelve months. An online questionnaire, using a representative sample of airline passengers in the United Kingdom, enabled generalisations to be made to the broader population.

5.2 Pre-testing

The questionnaires were pre-tested using the online questionnaire hosting service at www.surveymonkey.com. The main objective of the pre-testing exercise was to establish whether to allow all respondents to assess airline brand perceptions on a specific airline, as chosen by the researcher, or to allow respondents to assess airline brand perceptions on an airline of their own choosing. The secondary objective was to test the sequence and wording of the questions.

Two questionnaires were pre-tested (see Appendix D). The first and the second questionnaires in the pre-testing exercise were identical except that the latter specifically mentioned the Virgin Atlantic Airways brand. In the first questionnaire respondents' brand perceptions were assessed on an airline brand of their own choosing. Their assessment was therefore based on airlines with which they were most familiar. This approach was also expected to attract brand perception ratings from a wide range of airlines which would allow comparisons to be made between different airline brand perceptions. In the second questionnaire in the pre-testing exercise, brand perceptions were assessed on the Virgin Atlantic Airways brand. It was probable that not every respondent had travelled on Virgin Atlantic Airways. In the focus groups, participants were reluctant to express their views on airlines which they had not travelled on. In the pre-testing questionnaire, the instruction emphasised that

assessments did not have to come from direct experience only, but that participants' impressions of what they already knew about the airline from other sources were acceptable. The Virgin Atlantic Airways brand was chosen because it is a full service carrier brand. In the focus group, it was demonstrated that the Virgin Atlantic Airways brand represented a unique case scenario. This is an English airline brand, but the strongest secondary association of this brand does not relate to the country of origin of the airline (in comparison with the British Airways brand that was also discussed in the focus group). Additionally, the Virgin Atlantic Airways brand is an example of an airline that has adopted compound branding strategy. Thus, it is probable that the respondents would have had certain level of awareness of this brand.

Two questionnaires were tested on 74 respondents. Respondents were recruited either when taking part in focus groups or by invitation sent via social media networks such as Linkedin and Facebook. Prospective participants had to have travelled on both full-service carriers and low-cost carriers. Respondents recruited through social media networks were firstly asked if they had travelled on both full service and low cost carriers. Their relevant air travel experience then made them suitable for the pre-testing exercise. The respondents were recruited based on a purposive sampling method (non-probability sampling). This was deemed to be acceptable for this pre-testing exercise.

There were 21 airline brand perception measures. Convergent validity was achieved because these measures were proposed by academic frameworks (Aaker, 1996; Keller, 1993) and other brand practitioners. Convergent validity ensures that the online questionnaire can capture the features that distinguish airline brands from brands in other sectors (Lehmann et al., 2008). Table 5.2-1 shows the 21 airline brand perceptions that were used in the pre-testing exercise and the source of each measure.

Table 5.2-1 Airline brand perception measures used in online questionnaire

Airline brand perception measures	Source
'I see a lot of advertisements about (airline)'	Miller Brown
'I understand what (airline) is trying to tell me'	Brand Asset Valuator
'(airline) stands out from its competitors'	Brand Asset Valuator
'I hold (airline) in high regard'	Brand Asset Valuator
'(airline) lives up to its promises'	Millward Brown, Research International
'(airline) offers clear advantage vs the competition'	Millward Brown
'I am strongly committed to fly with (airline)'	Millward Brown, Research International
'I can count on (airline)'	Research International
'(airline) is innovative'	Innovation
'(airline) cares about its customers'	Brand Asset Valuator
'I have happy memories of flying with (airline)'	Brand Asset Valuator
'I can never go wrong flying with (airline)'	Brand Asset Valuator
'I would recommend flying with (airline)'	Brand Asset Valuator
'(airline) consistently satisfies me'	Amber, 2003
'If a problem with (airline) 's service arose, (airline) would quickly fix it	Amber, 2003
'I would pay extra to fly (airline)'	Keller,1993
'I plan to fly (airline) in the future'	Keller,1993
'Flying with (airline) represents excellent value for money'	Keller,1993
'When I think of flying with (airline) I have positive thoughts'	Research Attitude
'I would forgive (airline) if occasionally the product seemed sub-standard'	Fournier, 1998
'I talk about (airline) with my friends'	Keller, 1993

Source: Lehmann et al., 2008

In order to assess content validity, a summated scale, which represented the aggregated ratings of the 21 airline brand perceptions from the pre-testing

sample (n=74), was constructed (Spector, 1992). There was a strong correlation between the 21 brand perceptions and the summated score of airline brand perceptions (see Appendix E). The strong correlation suggests that the 21 airline brand perception measures can be used to identify the structure of airline brand equity.

A one-way analysis of variance was conducted to establish whether significant differences existed in the means of airline brand perceptions amongst the pre-tested respondents. The dependent variable was the airline brand that was identified (either Virgin Atlantic Airways or another airline chosen by the respondent), while the independent variables were the 21 airline brand perception measures. The analysis of variance shows that significant differences exist (at a 0.05 level of significance) on five airline brand perception measures (see Appendix E.1):

- 'I am strongly committed to fly with (airline)',
- 'I have happy memories flying with (airline)'
- '(airline) consistently satisfies me' ,
- 'I would forgive (airline) if occasionally the product seemed sub-standard'; and
- 'I talk about (airline) with my friends'

The Bonferroni tests for multiple comparisons were conducted to compare the difference in the means of two groups of business and two groups of leisure travellers' airline brand perceptions of the Virgin Atlantic Airways brand and on other airline brands chosen by the respondents themselves. This is illustrated in Table 5.2-2 and Appendix E.2.

Table 5.2-2 Multiple comparisons in the means of airline brand perceptions

Group for multiple comparisons	Type of travellers	Airlines
1	Business travellers	Virgin Atlantic Airways
2	Business travellers	Self-chosen
3	Leisure travellers	Virgin Atlantic Airways
4	Leisure travellers	Self-chosen

The Bonferroni Tests show that (on the five mentioned airline brand perception measures) the respondents rated the Virgin Atlantic Airways brand significantly higher than other airline brands (chosen by the respondents themselves). The Bonferroni test adjusts the significance level (0.05 level of significance) according to the number of multiple comparisons that are made (Hair, 2010). The Bonferroni tests for multiple comparisons may not be suitable when comparing differences in the means between a large number of groups, because it may not detect the differences between them (Mendenhall, 2003; Zar, 1999). The Bonferroni tests for multiple comparisons were conducted to identify the differences in the means of airline brand perceptions amongst only four groups. The conclusion was that the Bonferroni test is sufficient for the purpose of this pre-testing exercise.

In the pre-testing questionnaire that asked respondents to assess the Virgin Atlantic Airways brand, the instructions emphasised that it was not crucial for respondents to have travelled with Virgin Atlantic Airways. Instead, their perceptions and impressions from what they knew about the airline were also acceptable. There was some reluctance on the part of respondents to assess a brand with which they were not familiar. However the pre-testing questionnaire showed that respondents still rated the Virgin Atlantic Airways brand significantly higher than those who assessed a self-selected airline brand. By comparison, the focus group discussions showed that participants held strongly negative views of low-cost carrier brands such as Ryanair and Air Asia. If the questionnaire assessed airline brand perception using a low-cost carrier brand such as Ryanair, the questionnaire might suffer from respondents' strongly negative perceptions of such brands. It was decided therefore that the final questionnaire would assess an airline chosen by the respondent. This approach would allow the study to obtain airline brand perceptions and assessments of products and service importance of both full-service carrier and low-cost carrier brands.

The pre-testing exercise showed that there were a number of ambiguities in the questionnaire. Analysis of the responses suggested that respondents did not understand airline terms such as “seat pitch” and “round-trips”. In the aided brand recall exercise, many respondents did not understand the difference between full-service and low-cost carriers. Consequently, in the final questionnaire, brand awareness was measured in an unaided brand-recall exercise. Respondents were asked to name any three airlines they could think of. Ambiguous terms, such as those mentioned above, were changed to “seat space” and “return trips” respectively. Other vague terms such as “crew’s capability” were changed to reflect specific skills such as “cabin crew’s ability to answer questions” and “willingness to help”.

5.3 Final questionnaire

5.3.1 Assessments of airline brand perceptions

In the final questionnaire (see Appendix H), each respondent was asked to name and assess the airline they ‘most like to fly with’. This approach satisfied the fact that airline brand equity can be derived from both direct experiences, as a customer, as well as impressions gained from other sources, such as word-of-mouth promotions and advertisements. The term ‘favourite airline’ was not used because, during the exploratory study, when participants discussed their ‘favourite airlines’, other participants were reluctant to join in the discussion, as it implied that customers must have travelled with the airline.

An online questionnaire was conducted to assess airline brand perceptions and product and service importance. Online questionnaires allow each airline brand perception measure to be randomised. Each of 21 airline brand perception measures was randomised to minimise respondents’ order of response biases. Air travel demand is derived because passengers buy air travel to be at the destination, rather than being on the plane itself.

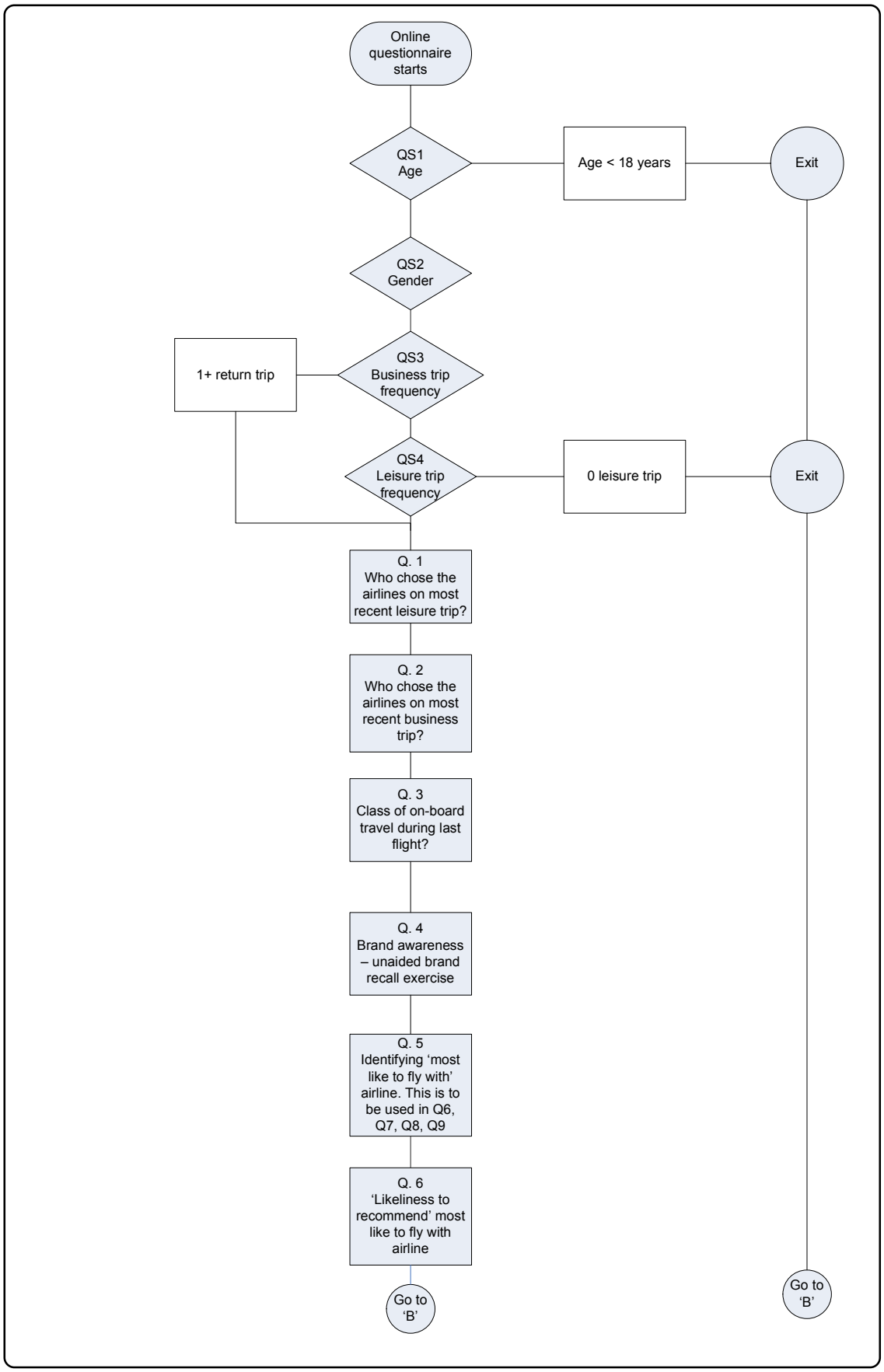
In contrast, goods in sectors that provide tangible products represent direct demand, because consumers gain benefits directly from the products purchased. The scale was therefore modified to reflect flying, instead of buying.

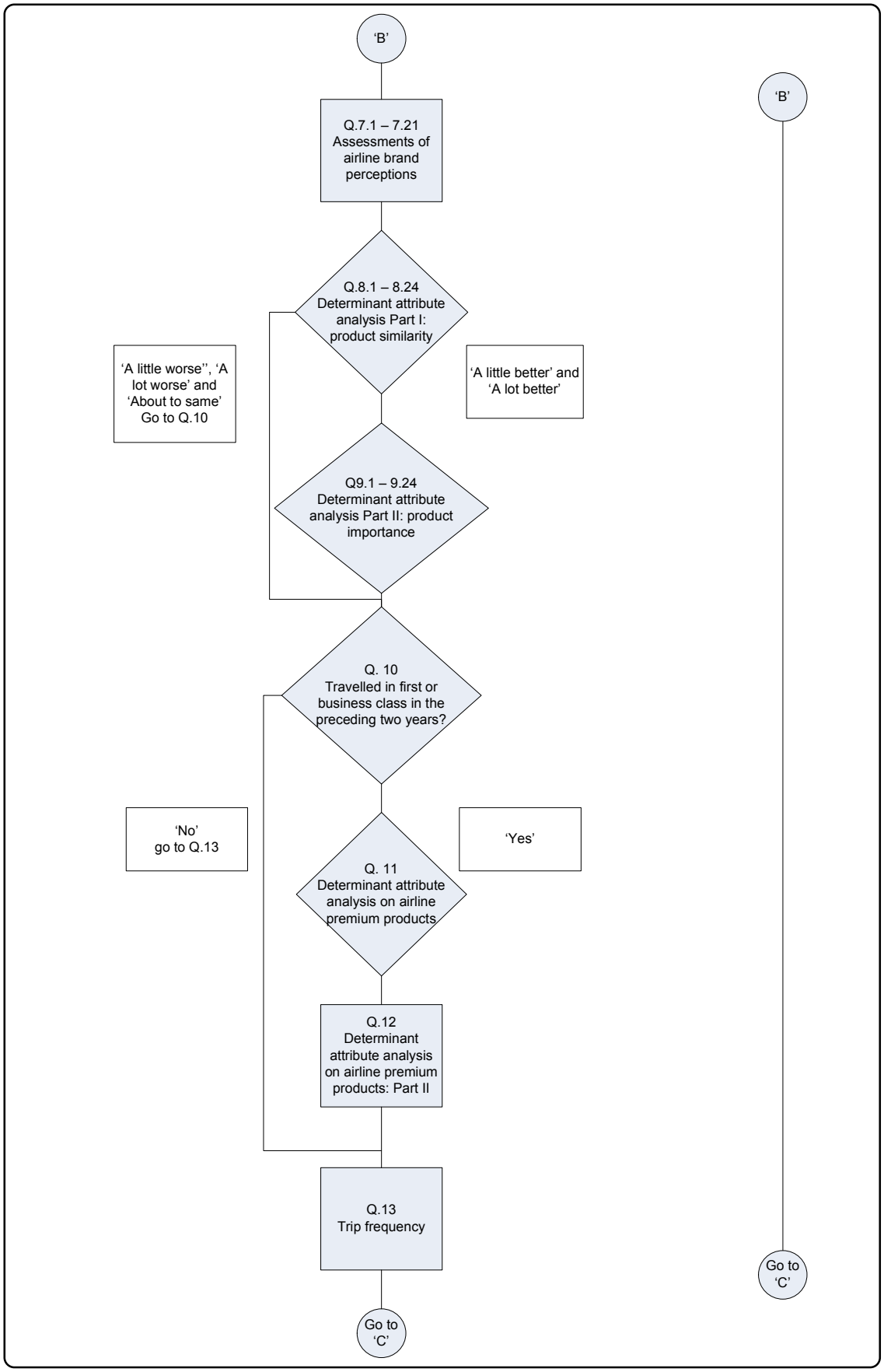
For example, ‘I plan to buy this brand in the future’ was changed to ‘I plan to fly (airline) in the future’. Similarly, ‘I am strongly committed to buy (brand)’ was changed to ‘I am strongly committed to fly with (airline)’.

The 21 airline brand perception measures were assessed on the following scale:

- ‘Strongly disagree’
- ‘Disagree’
- ‘Neither agree nor disagree’
- ‘Agree’; and
- ‘Strongly agree’

Computer assisted questionnaires enable choices to be personalised based on previous responses. Figure 5.3-1 shows the sequence of the questions asked and how each respondent’s responses determined the sequence of the questions. In airline product and service importance assessment, unlike the airline brand perception measures, each question was not randomised. The order of each measure reflected the travellers’ journey from reservation to arrival at the destination.


Online questionnaire starts
QS1 Age
Age < 18 years
Exit
QS2 Gender
1+ return trip
QS3 Business trip frequency
QS4 Leisure trip frequency
0 leisure trip
Exit
Q. 1 Who chose the airlines on most recent leisure trip?
Q. 2 Who chose the airlines on most recent business trip?
Q. 3 Class of on-board travel during last flight?
Q. 4 Brand awareness – unaided brand recall exercise
Q. 5 Identifying 'most like to fly with' airline. This is to be used in Q6, Q7, Q8, Q9
Q. 6 'Likeliness to recommend' most like to fly with airline
Go to 'B'
Go to 'B'


'B'
Q.7.1 – 7.21
Assessments of airline brand perceptions
Q.8.1 – 8.24
Determinant attribute analysis Part I: product similarity
'A little worse'', 'A lot worse' and 'About to same'
Go to Q.10
'A little better' and 'A lot better'
Q9.1 – 9.24
Determinant attribute analysis Part II: product importance
Q. 10
Travelled in first or business class in the preceding two years?
'No'
go to Q.13
'Yes'
Q. 11
Determinant attribute analysis on airline premium products
Q.12
Determinant attribute analysis on airline premium products: Part II
Q.13
Trip frequency
Go to 'C'
'B'
Go to 'C'

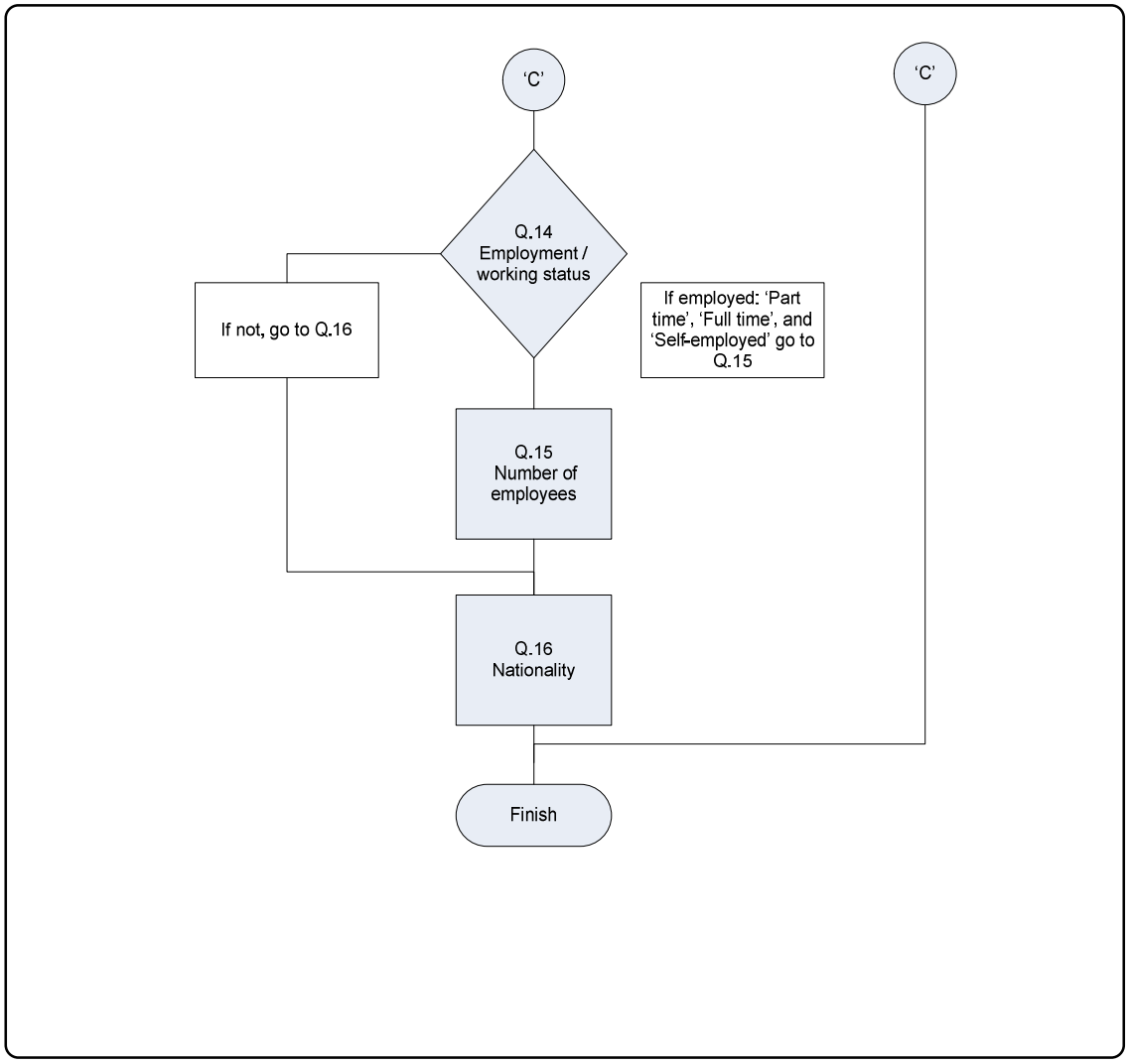


Figure 5.3-1 Sequence and branching pattern of online questionnaire

Table 5.3-1 Flowchart symbols

Symbol	Symbol name	Meaning
	Terminal	Start or end of a sequence of questions
	Process	The questions ('What' not 'How')
	Decision	A branching operation
	Connector	Connection between parts of a flowchart

Source: American National Standard Institute, 2012

5.3.2 Product and service importance assessments

The importance of airline products and services was assessed using determinant attribute analysis, which has two parts. In the first part, product similarity to competitors was measured on a five-point scale as follows:

- ‘A lot worse’
- ‘A little worse’
- ‘About the same’,
- ‘A little better’; and
- ‘A lot better’

This research assumes that products that are either ‘A little better’ or ‘A lot better’ are both more distinctive and influential at the time of buying. Products that were rated as either ‘A little better’ or ‘A lot better’ were investigated further by assessing how influential each product was at the time of choosing an airline. In this part of the determinant attribute analysis, airline product importance was measured on a four-point scale as follows:

- ‘Not at all influential on my choice to fly with (airline)’
- ‘Of little influence on my choice to fly with (airline) ’
- ‘Somewhat influential to fly (airline)’; and
- ‘Very influential to fly (airline)’

An airline product determinant attribute score for each respondent was then calculated using the composite product of how similar and influential each product was in airline choice. The scale used in the airline product determinant attribute analysis was different from the scale used in the product importance assessment in the pre-testing exercise, which was measured on the following five- point scale as follows:

- ‘Least important’
- ‘Somewhat important’
- ‘Neither unimportant or important’
- ‘Important’; and

- ‘Most important’

The scale was modified to reflect how determinant attribute analysis measures the influence of each product when choosing an airline, instead of a measure of generic importance. A determinant attribute score for each respondent and for each product is a composite of perceived degree of similarity to competitor products (A) and perceived degree of influence in the purchase (B). Thus, a determinant score for each airline product indicates the degree of perceived similarity to competitor products of these product items to each respondent (see equation below). An attribute with a high determinant score is one that highly influences airline choice, because it is both important and distinctive. These are the attributes that contribute the most to the establishment of airline brand equity. In contrast, an attribute with a low determinant score is one that does not significantly influence airline choice.

Determinant attribute score = A x B

Where

A = Respondent assessment of product item’s similarity to competitor airline products

B = Influence of that product item on respondent purchase intention

Full-service carriers tend to offer premium products to first and business class passengers such as airport lounges and on-board amenity kits. It is probable that not every passenger has used airline premium products. Respondents were firstly asked if they had travelled in first or business class over the preceding two years. Only those who had travelled this way at least once were asked to indicate which airline premium product they had used. The three-point scale used was:

- ‘Have not used’

- ‘Have used '; and
- ‘Do not recall using’

This research assumed that airline premium products that respondents’ have not used or do not recall using have little influence in choice of airline brand. Only products that had been used by respondents were investigated further in the second part of the determinant attribute analysis.

In the second part of the analysis for airline premium products, product importance was assessed. Each respondent was asked to indicate how influential those premium products were at time of buying. The three-point scale used was:

- ‘Do not need it’,
- ‘Nice but not necessary’; and
- ‘Must have this service’.

It was once possible to classify airlines such as Ryanair, EasyJet and Air Asia as low-cost carriers and airlines such as British Airways, Qantas and United Airlines as full-service carriers. This was when the strategies airlines in each category adopted were vastly different (Shaw, 2004). For example, it was only low-cost carriers that charged customers extra for additional products and services. However the situation has changed and many airlines now adopt similar pricing strategies and provide similar products (Mason and Morrison 2008). The exploratory research showed that one of an airline’s most salient features is related to its product offerings. Full-service carriers are still associated with elaborate products and services such as in-flight entertainment and in-flight meal service. In contrast, low-cost carriers are associated with providing fewer products and services.

As each respondent was asked to name an airline with which they most liked to fly, the airline was classified as either a low-cost carrier or a full-service carrier. Despite increasing similarity, comparisons are most effective between possible substitutes (Kayaman and Arasli, 2007), because it is the buyers’ consideration of a set of alternatives at time of buying. If a full-service carrier brand (airlines 1

to airlines 122 in Appendix F) was mentioned, the computer-assisted questionnaire displayed a list of other full-service carriers. Both lists were comprised of airline brands that have generated the highest volume of revenue (Dunning-Mitchell and Cox, 2010). It is probable that each respondent's 'most like to fly with' airline would come from these two lists.

The assessments of product importance (in a determinant attribute analysis) were made amongst two other full-service carrier brands. If a low-cost carrier brand was mentioned (airlines 123 - airlines 151 in Appendix G), a list of two other low-cost carrier brands was displayed for assessment and comparison. For example, if British Airways was identified, a list of two other full-service carrier brands was displayed. This list contained:

- Virgin Atlantic Airways
- Thai Airways International
- Lufthansa
- Air France
- Qantas
- American Airlines
- Iberia
- Swiss Air Lines International
- Delta Airlines

If a low-cost carrier brand was mentioned, two low-cost carrier brands from this list were displayed.

- EasyJet
- Ryanair
- Germanwings
- Wizzair
- Flybe
- BMIBaby
- Jet2
- Tuifly

5.4 Sample size

The sample size required to provide information that can be inferred to the population was calculated at a 95% confidence interval. Full-service carrier and low-cost carrier revenue is generated from different types of air travellers, where the ratio between business and leisure travellers is 60:40 (Dresner, 2006). An airline may struggle to serve the needs of every segment. The aim of branding is to communicate and deliver suitable value propositions to attract the preferred target market segment.

Sample size was estimated on the basis of a population split of business to leisure travellers that was expected to be 60/40. The sample size was selected to estimate each of these proportions, with a 95% confidence interval with a confidence range of ±.05. The sample size necessary to create such a confidence interval is 369 respondents (Czaja and Blair, 2005).

$$n = \left(1 - \frac{n)}{N}\right) * \frac{t^2\,(pq)}{d^2} = finite\ population\ correction * \frac{Probability\ level\ x\ variance}{confidence\ interval}$$

Where

n = the same size or the number of completed interviews with eligible elements

N = the size of the eligible population

t^2 =the squared value of the standard deviation score that refers to the area under a normal distribution of values

p = the percentage of category for which we are computing the sample size

q= 1-p

d^2 = the squared value of one half the precision interval around the sample estimate

p = 0.60 (business travellers), q = 0.40 (leisure travellers) d = 0.005.

$$n = \left(1 - \frac{n)}{N}\right) * \frac{t^2\,(pq)}{d^2} = finite\ population\ correction * \frac{Probability\ level\ x\ variance}{confidence\ interval}$$

$$n = \frac{(1.96^2)\,(0.6*0.4)}{(0.05^2)}$$

n = 369

5.4.1 Sample selection

The online questionnaire was completed by a representative sample of business and leisure travellers in the United Kingdom (n=1031). Recruitment of qualified participants was completed by Research Now, a market-research company, which maintains a panel of respondents in the United Kingdom. A screening question reflected the purposive (non-probabilistic) sampling method. This sampling method was also applied in the recruitment of focus group participants in the first part of this research (see section 4.2.1). However, the aim of the quantitative questionnaire was to be able to make generalisations to the broader sample. Hence, a representative sample was created by applying quota levels, in order to have an equal number of business and leisure travellers.

The sample panel maintained by the research company contains members from across the different National Readership Survey (NRS) social grades category. The NRS system categorises a population into demographic groups based on their occupation.

There are six socio-economic groups:

- A: Upper middle class
- B: Middle class
- C1: Lower middle class
- C2: Skilled working class
- D: Working class; and
- E: Those at the lowest levels of subsistence.

The categorisation is based on the head of the household's occupation and income. Income is one of the factors that influences airline choice (Graham, 2006). Balancing out members of different socio-economic groups was achieved by inviting members from each group periodically over the data

collection period. This was to prevent the potential flow of 'first-in' participants. The socio-economic groups of the online questionnaire respondents are illustrated in Table 5.4-1.

Table 5.4-1 Socio-economic groups of questionnaire respondents (n=1031)

Socio-economic group	Frequency	Percent (%)
A	108	10.5%
B	318	30.8%
C1	318	30.8%
C2	105	10.2%
D	59	5.7%
E	123	17.9%
Total	1031	100%

Amongst the questionnaire respondents (n=1031), 41.3% (10.5% + 30.8%) came from the upper middle and middle class (socio-economic groups A and B), 30.8% and 10.2% from the lower middle and skilled working class (socio-economic groups C1 and C2 respectively) and 5.7% and 17.9% from the working class and the lowest socio economic groups (socio-economic groups D and E respectively). In comparison to the United Kingdom residents who had travelled by air in 2009, 34.4% came from socio-economic groups A and B, 19.2% and 10.9% from socio-economic groups C1 and C2 and 10.9% and 4% from socio-economic groups D and E (see Table 5.4-2) (Keynote, 2010).

The online questionnaire attracted a slightly higher proportion of airline passengers who came from upper and middle class socio-economic groups than the general United Kingdom residents. This suggests that the most affluent respondents are more likely to travel by air more frequently than the general United Kingdom population. In contrast, the least affluent respondents (from the skilled working class, working class, and those from the lowest levels of subsistence groups), are likely to travel by air less frequently that the general United Kingdom population, while those from the lower middle socio economic

group (C1) are likely to be have similar flying frequency to the United Kingdom residents.

Table 5.4-2 Profile of United Kingdom residents who had travelled by air in the last twelve months, during 2005 – 2009

Socio-economic group	2005	2006	2007	2008	2009
AB	35.4%	34.0%	33.6%	35.0%	34.4%
C1	31.9%	31.0%	31.5%	31.8%	31.5%
C2	17.9%	18.7%	18.4%	18.9%	19.2%
D	10.9%	12.2%	12.4%	10.7%	10.9%
E	3.9%	4.0%	4.1%	3.7%	4.0%

Source: (Keynote, 2010)

Secondly, the incidence levels were established to reflect the percentage of the United Kingdom residents who had taken a flight for leisure and business purposes at 50.6% and 10.2% respectively (Keynote, 2010).

A screening question was used to identify whether a respondent would qualify either as a business traveller or a leisure traveller. Each respondent was asked if they had travelled for either business or leisure purposes. Respondents who indicated they had travelled by air for business-related reasons qualified to participate as a business traveller. If this condition was not satisfied, the respondent was asked if they had travelled for leisure. If this condition was satisfied, then the participant qualified to take part as a leisure traveller.

Respondents who did not satisfy either prerequisite were not required to complete the questionnaire. A business traveller was defined as one who had travelled by air for work-related reasons during the preceding twelve months. While a leisure traveller was one who had travelled for leisure at least once over the preceding twelve months. Business and leisure travellers may have also travelled for the other reason. The aim was to attract an equal number of qualified participants (business and leisure travellers) to allow for comparisons between these two segments to be made. It is acknowledged that there is a

slight sample bias in that, if a person travelled both business and leisure they were less likely to be included in the leisure sample (probability less than one), but if they travelled for leisure purposes only their probability of being included in the leisure sample was 1.

5.5 Quantitative data analysis

5.5.1 Preliminary analysis

The sample was checked for outliers and invalid cases. Outliers were defined as "cases with such extreme values on one variation or a combination of variables that they distort statistics" (Tabachnick and Fidell, 1996, p.66). Zero variance was used as an indicator of invalid cases. These are respondents who gave identical answers in either the airline brand perceptions assessments or each of the two parts of the product and service importance in a determinant attribute analysis. A total of 459 respondents gave identical responses to either questions 7.1 to 7.21 (airline brand perceptions), questions 8.1 to 8.24 (determinant attribute analysis: part 1: product similarity), or questions 9.1 to 9.24 (part 2: product importance). It is likely that these respondents did not take the time to answer each question accurately. This may be attributed to the length of the questionnaire. Twenty-one airline brand perception measures and 24 general products and services items were tested. Respondents who provided identical answers were noted as potential invalid cases. These invalid cases were eventually excluded from the sample.

After these invalid cases were identified, outliers were explored using a multivariate approach. Outliers were measured based on Mahalanobis distance which measures outliers by examining variables' high variance and those that are highly correlated (Tabachnick and Fidell, 1996). Mahalanobis distances were examined to remove cases that were outliers (at the 0.05 level of significance) given the colinearity in the overall data set. When combined, there was a total of 459 cases that could potentially be removed from the sample. In the meantime, there were a total of 550 usable cases for further analysis. This sample size still satisfied the sample requirement. This meant that findings from the sample could still be generalised over a broader population.

5.5.2 Data analysis

The data was analysed with the assistance of SPSS 10.5, which facilitates the descriptive and multivariate data analyses that were conducted.

5.5.3 Assumption of parametric data

There are four assumptions of parametric data to satisfy, namely:

- Normal distribution of data
- Homogeneity of variance
- Interval data; and
- Independence of each occurrence

These assumptions were examined to ensure that generalisations could be made to the broader population beyond those sampled (n=550).

5.5.3.1 **Normal distribution of data**

The Kolmogorov-Smirnov and the Shapiro-Wilk tests were conducted to check the distribution of the twenty-one airline brand perception measures (Field, 2009).

Where

$H_{o:}$ the distribution of the twenty-one airline brand perception measures are normal

$H_{a:}$ The distribution of the twenty-one airline brand perception measures are not normal

The results of both tests suggested that the data distribution was not normal (at a 0.05 level of significance) (see Table 5.5-1). This may have been attributed to a high sampling error that often occurs in a large sample (n = 550) (Field, 2009). The high -sampling error may have led to a Type I error, where the null hypothesis is falsely rejected (Hair, 2010).

Table 5.5-1 Tests of normality of airline brand perception measures

Airline brand perception measures	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
'I see a lot of advertisements about (airline)'	0.256	550	.000	.877	550	.000
'I understand what (airline) is trying to tell me'	0.310	550	.000	.814	550	.000
(airline) stands out from its competitors'	0.349	550	.000	.778	550	.000
'I hold (airline) in high regard'	0.341	550	.000	.748	550	.000
'(airline) lives up to its promises'	0.328	550	.000	.806	550	.000
'(airline) offers clear advantage vs the competition'	0.295	550	.000	.846	550	.000
'I am strongly committed to fly with (airline)'	0.228	550	.000	.887	550	.000
'I can count on (airline)'	0.322	550	.000	.814	550	.000
'(airline) is innovative'	0.271	550	.000	.834	550	.000
'(airline) cares about its customers'	0.353	550	.000	.772	550	.000
'I have happy memories of flying with (airline)'	0.256	550	.000	.859	550	.000
'I can never go wrong flying with (airline)'	0.243	550	.000	.856	550	.000
'I would recommend flying with (airline)'	0.310	550	.000	.805	550	.000
'(airline) consistently satisfies me'	0.278	550	.000	.841	550	.000
'If a problem with (airline) 's service arose, (airline) would fix it quickly'	0.298	550	.000	.823	550	.000
'I would pay extra to fly (airline)'	0.219	550	.000	.885	550	.000
'I plan to fly (airline) in the future'	0.282	550	.000	.854	550	.000
'Flying with (airline) represents excellent value for money'	0.250	550	.000	.870	550	.000
'When I think of flying with (airline) I have positive thoughts'	0.342	550	.000	.756	550	.000
'I would forgive (airline) if occasionally the product seemed sub-standard'	0.185	550	.000	.901	550	.000
'I talk about (airline) with my friends'	0.191	550	.000	.909	550	.000

These statistical test results were also compared against probabilistic measures shown in Q-Q plots (see Appendix J.1 to Appendix J.21).

The Q-Q plots show the relationships between expected values against the actual values of the data. Q-Q plots showed there were no significant deviations from the expected values. The conclusion was that normality of data requirement had been satisfied.

5.5.3.2 **Equality of variance**

To determine if variances are equal Levene's test of homogeneity of variance was conducted (Field, 2009).

Where

$H_{o:}$ the variances in different groups (business and leisure travellers) are equal

$H_{a:}$ the variances in different groups (business and leisure travellers) are not equal

At a 0.05 level of significance, the Levene's test of homogeneity of variance indicated that variances of the following airline brand perception measures are not equal (see Table 5.5-2 and Appendix K). Hence, the null hypothesis (H_o) on the following airline brand perception measures were not accepted.

- '(airline) stands out from its competitors'
- 'I hold (airline) in high regard'
- 'I am strongly committed to fly with (airline)'
- '(airline) cares about its customers'
- 'I have happy memories flying (airline)'
- 'I can never go wrong flying with (airline)'
- 'I plan to fly (airline) in the future'
- 'Flying with (airline) represents excellent value for money'
- 'When I think of flying with (airline), I have positive thoughts'; and
- 'I would forgive (airline) if occasionally the product seemed sub-standard'.

Table 5.5-2 Results of Levene's test of homogeneity of variance (based on mean)

Airline brand perception measures	Levene Statistic	Df1	Df2	Sig
'I see a lot of advertisements about (airline)'	2.992	1	518	0.084
'I understand what (airline) is trying to tell me'	0.276	1	518	0.517
'(airline) stands out from its competitors'	4.993	1	518	0.026
'I hold (airline) in high regard'	10.496	1	518	0.001
'(airline) lives up to its promises'	3.538	1	518	0.060
'(airline) offers clear advantage vs the competition'	2.828	1	518	0.093
'I am strongly committed to fly with (airline)'	6.692	1	518	0.010
'I can count on (airline)'	2.367	1	518	0.125
'(airline) is innovative'	0.223	1	518	0.637
'(airline) cares about its customers'	8.211	1	518	0.004
'I have happy memories of flying with (airline)'	3.906	1	518	0.049
'I can never go wrong flying with (airline)'	5.763	1	518	0.017
'I would recommend flying with (airline)'	3.038	1	518	0.082
'(airline) consistently satisfies me'	0.508	1	518	0.476
'If a problem with (airline) 's service arose, (airline) would fix it quickly'	2.590	1	518	0.108
'I would pay extra to fly(airline)'	2.947	1	518	0.087
'I plan to fly (airline) in the future'	8.512	1	518	0.004
'Flying with (airline) represents excellent value for money'	4.677	1	518	0.031
'When I think of flying with (airline) I have positive thoughts'	3.930	1	518	0.048
'I would forgive (airline) if occasionally the product seemed sub-standard'	0.650	1	518	0.420
'I talk about(airline) with my friends'	1.562	1	518	0.212

In a large sample, high sampling error may indicate a Type I error (Field, 2009). In this large sample, the variance ratio of business and leisure travellers was examined. Table 5.5-3 shows variance ratios between business and leisure travellers on 21 airline brand perception measures. Variance ratios were compared against the critical values for Hatley's F test to establish whether the variances of the interested groups were the same. The critical value for Hatley's F test statistic for comparing two group variances of business travellers

(n=280), and leisure travellers (n=270) was 1. Variance ratios of 21 airline brand perceptions between business and leisure travellers all exceeded the Hatley's F test statistic. This suggested that variances of the two groups were not the same. The variance ratio suggested that a sample of both business and leisure travellers did not come from the same population.

When the homogeneity of variance assumptions of parametric data is violated, the extent of the differences in the variances between the two groups should be examined (Robson, 2002). When the equality of variances was not assumed, independent t-tests were conducted. The independent t-tests compared the differences in variances between the two groups (business and leisure travellers). The independent t-tests showed that the differences in variance between business and leisure travellers were different at a 0.05 level of significance.

- 'I have happy memories flying with (airline)'
- '(airline) consistently satisfies me'
- 'I plan to fly (airline) in the future'; and
- 'I talk about (airline) with my friends'

In order to meet the homogeneity of variance requirements, airline brand perception measures may be transformed (Field, 2009). According to Hair (2010) it is important to preserve the natural pattern of the airline brand perceptions that are being investigated. Airline brand perception measures were not transformed. Instead, these four airline brand perception measures were noted.

When the principal component factor analysis was conducted using the 21 airline brand perception measures (in section 5.8), the communality scores of the above four airline brand perception measures indicated the amount of variance each airline brand perception measure contributed to the principal component of the structure of airline brand equity.

This is illustrated in Table 5.8-1. The communality scores of those above four airline brand perception measures suggest that even though the comparison of

the variance of airline brand perceptions between business and leisure travellers indicated that it came from different populations, those four airline brand perception measures still contributed a similar amount to the principal components of airline brand equity as the other airline brand perception measures. This suggested that the violation of those four airline brand perceptions was not severe. The conclusion was that the homogeneity of variance had been met.

Table 5.5-3 Variance ratio between business and leisure travellers

	Variance		
Airline brand perception measures	Business travellers	Leisure travellers	Variance ratio
'I see a lot of advertisements about (airline)'	0.996	0.875	1.138
'I understand what (airline) is trying to tell me'	0.482	0.484	1.004
'(airline) stands out from its competitors'	0.513	0.344	1.491
'I hold (airline) in high regard'	0.512	0.286	1.790
'(airline) lives up to its promises'	0.54	0.39	1.385
'(airline) offers clear advantage vs the competition'	0.661	0.515	1.283
'I am strongly committed to fly with (airline)'	0.85	0.702	1.211
'I can count on (airline)'	0.565	0.417	1.355
'(airline) is innovative'	0.531	0.48	1.106
'(airline) cares about its customers'	0.523	0.371	1.410
'I have happy memories of flying with (airline)'	0.82	0.882	1.076
'I can never go wrong flying with (airline)'	0.674	0.503	1.340
'I would recommend flying with (airline)'	0.588	0.466	1.262
'(airline) consistently satisfies me'	0.564	0.512	1.102
'If a problem with (airline) 's service arose, (airline) would fix it quickly'	0.553	0.428	1.292
'I would pay extra to fly (airline)'	0.857	0.742	1.155
'I plan to fly (airline) in the'	0.637	0.698	1.096
'Flying with (airline) represents excellent value for money'	0.78	0.585	1.333
'When I think of flying with (airline) I have positive thoughts'	0.545	0.33	1.652
'I would forgive (airline) if occasionally the product seemed sub-standard'	0.975	0.846	1.152
'I talk about (airline) with my friends'	1.061	1.046	1.014

5.5.3.3 **Interval data**

The online questionnaire assessed airline brand perceptions and product importance. As already discussed, airline brand perceptions were measured on a Likert scale (section 5.3.1) which ranged from:

- 'Strongly disagree',
- 'Disagree',

- ‘Neither agree nor disagree’,
- ‘Agree’; and
- ‘Strongly agree’

In section 5.3.2, the product importance assessments, airline products and service importance assessment (in a determinant attribute analysis) were measured on a Likert scale.

In the first part of the determinant attribute analysis, similarity to a competitor’s product was assessed on a scale of:

- ‘A lot worse’
- ‘A little worse’
- ‘About the same’
- ‘A little better’; and
- ‘A lot better’

In the second part of the determinant attribute analysis, product importance was assessed on a scale of:

- ‘Not at all influential on my choice to fly with (airline)’
- ‘Of little influence on my choice to fly with (airline)’
- ‘Somewhat influential to fly with (airline); and
- ‘Very influential to fly with (airline)

In contrast, when the determinant attribute analysis was conducted on premium products, the scale ranged from:

- ‘Don’t need it’
- ‘Nice but not necessary’; and
- ‘Must have this service’

5.5.3.4 **Independence of data**

Each respondent’s answer to each question did not influence the response of other participants. Thus, independence of the data is achieved, while the interval data requirement was also satisfied. The conclusion was that the independence assumption was satisfied.

5.6 Respondent overview

5.6.1 Trip purpose

After outliers and invalid cases had been removed, the sample size was 550 (n=550). This sample size satisfies the required sample size of 369 that was established in section 5.4.

Figure 5.6-1 illustrates that the sample consists of an approximately equal number of respondents who were qualified as either a business or a leisure traveller.

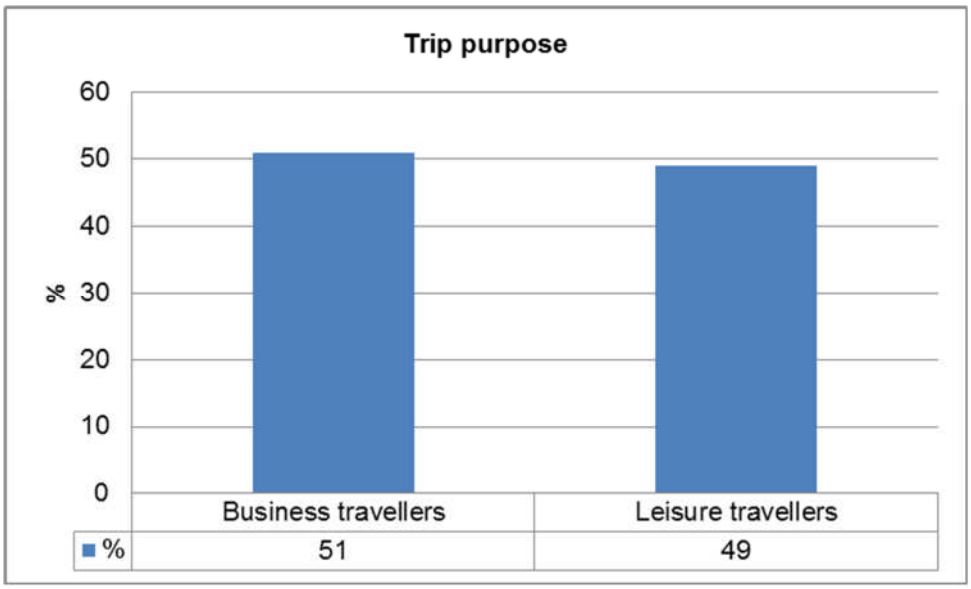
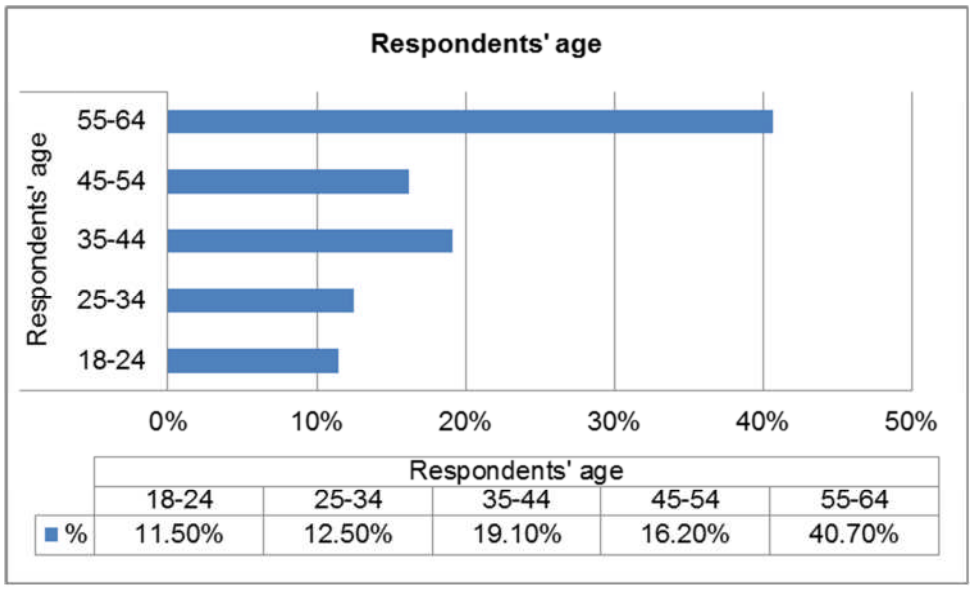


Figure 5.6-1 Trip purpose

5.6.2 Age

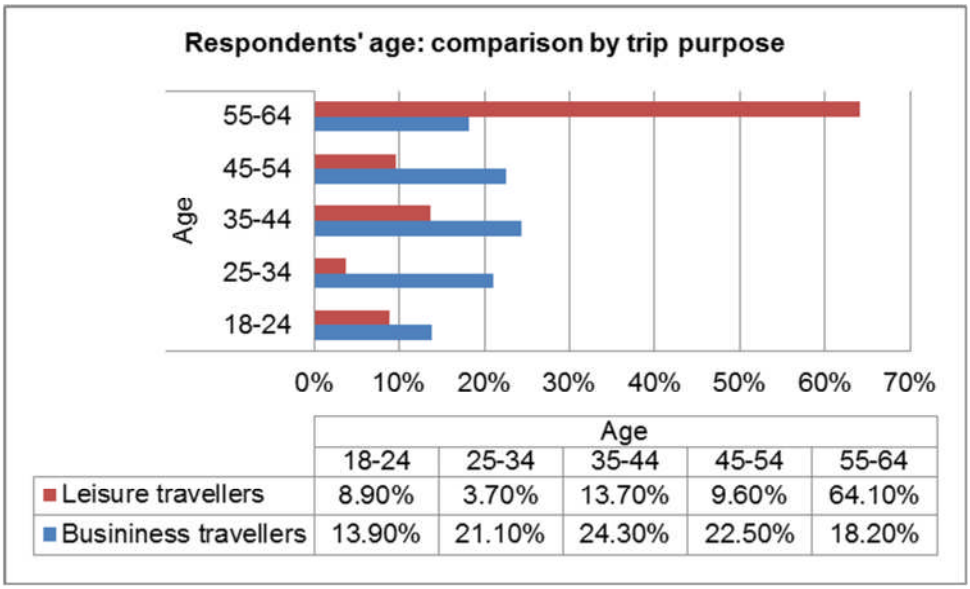
Figure 5.6-2 shows that the sample attracted a higher proportion of respondents aged over 55 years (40.7%). In contrast, qualified respondents under 55 years old, accounted for 59.3% of all respondents. Respondents less than 18 years of age were not qualified to participate in the study.



Respondents' age	18-24	25-34	35-44	45-54	55-64
%	11.50%	12.50%	19.10%	16.20%	40.70%

Figure 5.6-2 Respondents' age (n=550)

In Figure 5.6-3, when comparing the respondents' age by trip purpose the largest proportion of business travellers were aged between 35-44 years (24.3%), while the largest proportion of leisure travellers were aged between 55-64 years (64.1%).



	Age				
	18-24	25-34	35-44	45-54	55-64
Leisure travellers	8.90%	3.70%	13.70%	9.60%	64.10%
Busininess travellers	13.90%	21.10%	24.30%	22.50%	18.20%

Figure 5.6-3 Respondents' age: comparison by trip purpose

5.6.3 Trip frequency

5.6.3.1 **Leisure – short-haul (less than 5 hours)**

Table 5.6-1 Number of leisure short-haul trips in the last 12 months

Trip frequency	Midpoint trip frequency	Frequency (n)	Trip frequency Midpoint	Average trip frequency
1-2 trips	1.5	284	426	
3-5 trips	4	135	540	
6-10 trips	8	32	256	
11+ trips	15	14	210	
none	0	79	0	
Total		465	1432	
Average trip frequency	1432 ÷ 465			3.079

In the previous 12 months, on average, respondents made three short-haul, leisure trips.

5.6.3.2 **Leisure – long-haul (more than 5 hours)**

Table 5.6-2 Number of leisure long-haul (more than five hours) in the last 12 months

Trip frequency	Midpoint trip frequency	Frequency (n)	Trip frequency midpoint	Average trip frequency
1-2 trips	1.5	209	313.50	
3-5 trips	4	47	188	
6-10 trips	8	4	32	
11+ trips	15	7	105	
none	0	277	0	
Total		267	638.5	
Average trip frequency	638.5 ÷ 267			2.391

In the previous 12 months, on average, respondents made two long-haul, leisure trips. The Civil Aviation Authority (CAA) reported that United Kingdom residents make two return leisure trips per year. This illustrates that the trip frequency of respondents in this research was similar to that of the general United Kingdom population. The CAA's statistics, suggesting that trip frequency may be attributed to demographic factors such as household income, do not distinguish between short and long-haul durations (Civil Aviation Authority, 2008).

5.6.3.3 **Short-haul business trips in the last 12 months**

Table 5.6-3 Number of business short-haul trips in the last 12 months

Trip frequency	Midpoint trip frequency	Frequency (n)	Trip frequency midpoint	Average trip frequency
1-2 trips	1.5	125	187.5	
3-5 trips	4	45	180	
6-10 trips	8	17	136	
11+ trips	15	20	300	
none	0	77	0	
Total		207	803.5	
Average trip frequency	803. 5 ÷ 207			4

In the previous 12 months, on average, respondents made four short-haul business trips.

5.6.3.4 **Business – long-haul (more than 5 hours)**

Table 5.6-4 Number of business long-haul trips in the last 12 months

Trip frequency	Midpoint trip frequency	Frequency (n)	Trip frequency midpoint	Average trip frequency
1-2 trips	1.5	55	82.5	
3-5 trips	4	17	68	
6-10 trips	8	5	40	
11+ trips	15	12	180	
none	0	195	0	
Total		89	370.5	
Average trip frequency	370.5 ÷ 89			4.162

In the previous 12 months, on average, the respondents made four long-haul, business trips. Shaw (2007) pointed out that, on average, business travellers make 10 return business trips a year. This suggests that, on average the

research respondents made fewer business trips. This may have been attributed to the cost management tactics that were introduced during the economic downturn (Civil Aviation Authority, 2009).

5.6.4 Main decision maker – leisure trips

Figure 5.6-4 shows that, for leisure trips, the majority of respondents chose the airlines themselves.

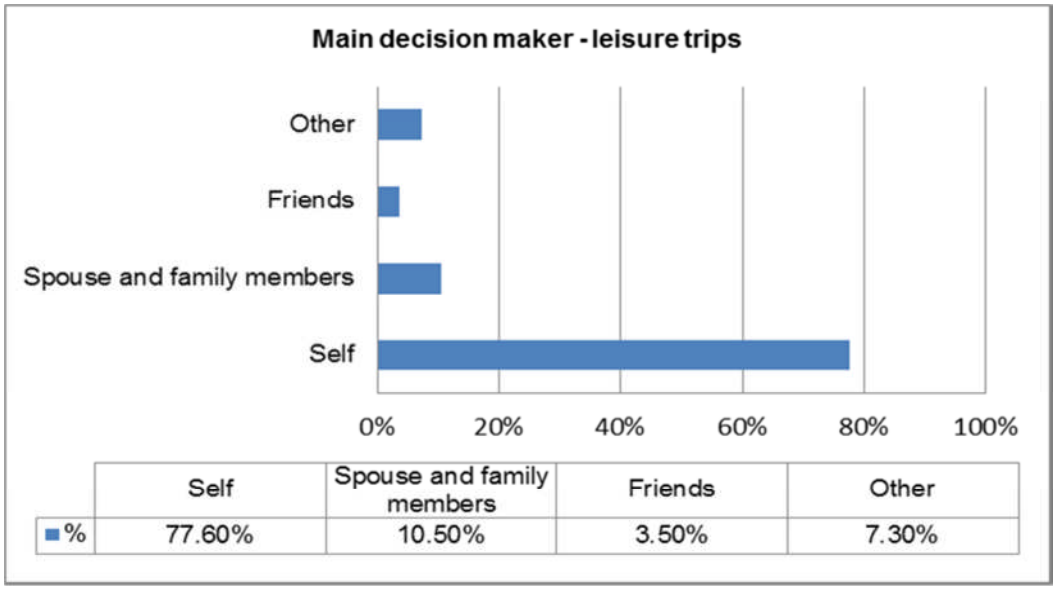


Figure 5.6-4 Main decision maker – leisure trips

5.6.5 Main decision maker – business trips

In contrast, Figure 5.6-5 shows that, 28.40% of the respondents, when travelling on business, chose the airline brands themselves, while 17.6% used the Travel Department within the organisation. Business travellers' travel plans are highly influenced by the travel policy of the organisation that they work for. This may indicate that choice of airline brand is also influenced by the organisation's travel policy.

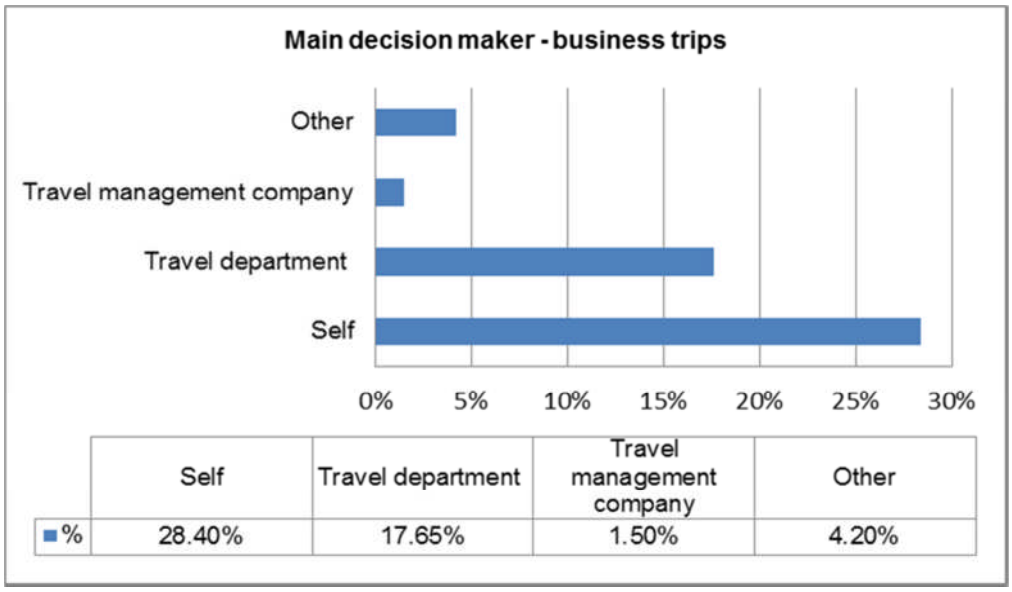


Figure 5.6-5 Main decision maker – business trips

5.6.6 Gender

Figure 5.6-6 shows that the questionnaire attracted equal proportions of male and female respondents.

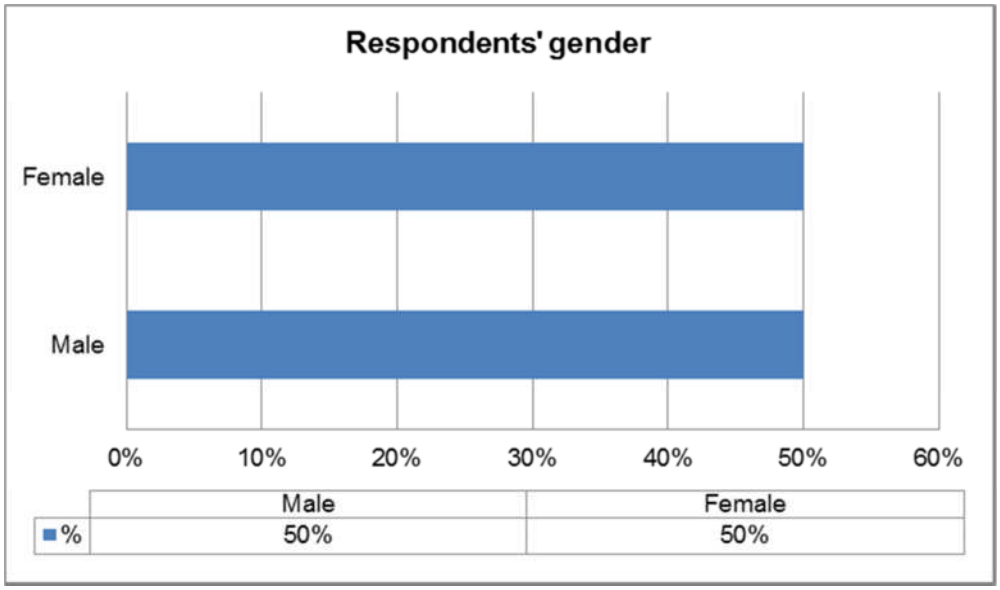


Figure 5.6-6 Respondents' gender

5.6.7 Class of on-board travel

Figure 5.6-7 shows that the most popular class of travel was economy class (76.4%). This may suggest that the respondents were most familiar with airlines' general products and services, instead of premium products that are offered when flying business and first class. The CAA reported that, in 1998, approximately a 30% of business travellers travelled either business or first class while only 5% of leisure travellers travelled in business or first class ((The Parliamentary Office of Science and Technology (POST), 2000). More recently, in 2009, the number of airline passengers travelling business or first class has fallen to 23%, while the use of the premium economy class for on-board travel increased to 9% (Civil Aviation Authority, 2009). The rise in the popularity of the premium economy class product indicates that it is becoming a popular alternative to business and first class products amongst business travellers.

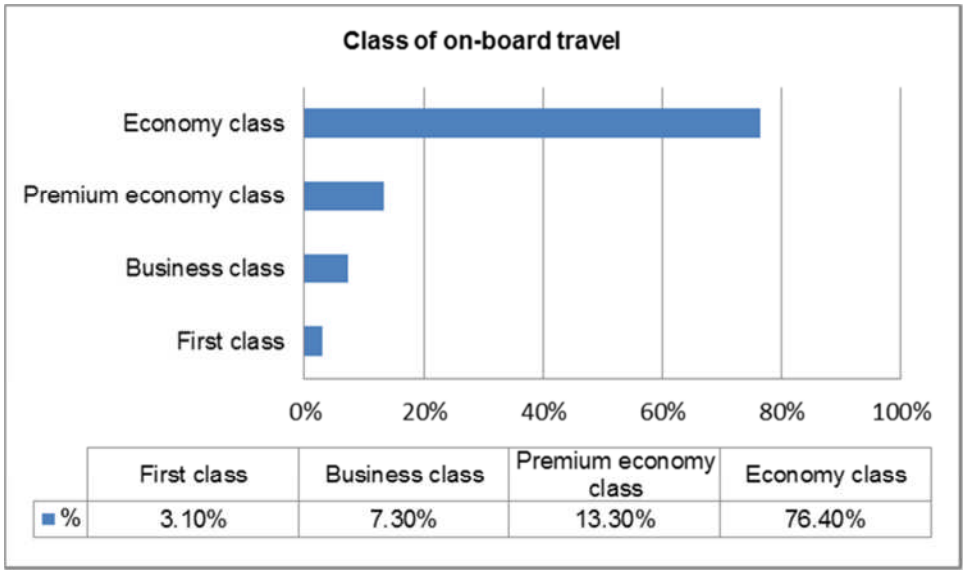


Figure 5.6-7 Class of on-board travel

5.6.8 Employment/working status

Figure 5.6-8 shows the largest proportion of respondents was in full-time employment (44.3%) while the second largest proportion of respondents was retired (27.3%).

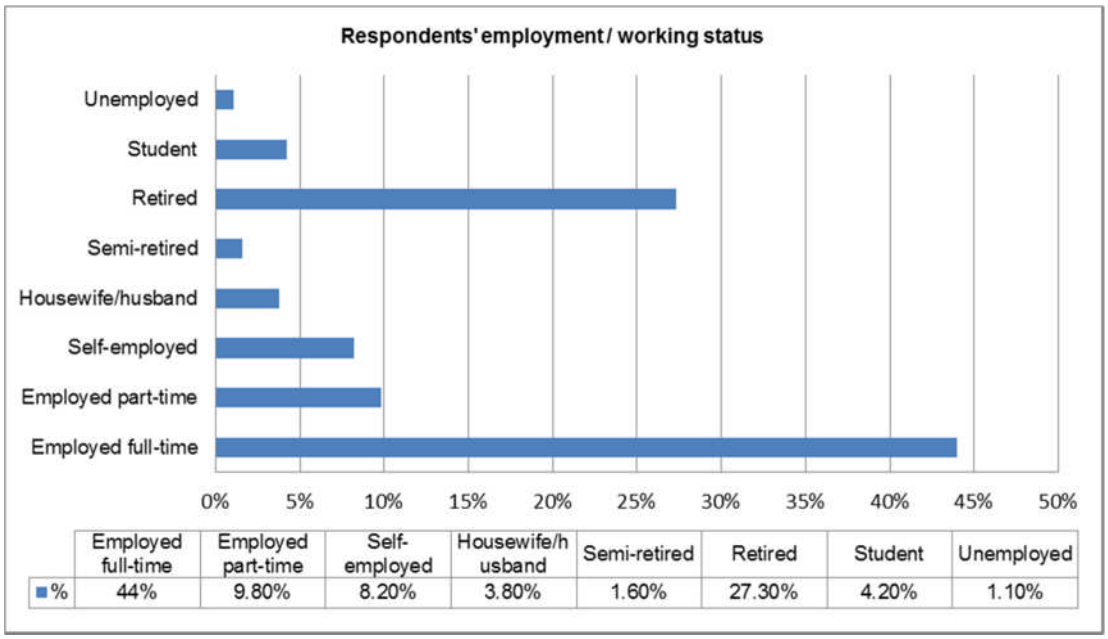


Figure 5.6-8 Respondents' employment status

5.6.9 Business travellers' profile

Figure 5.6-9 shows that approximately the same proportion of business travellers came from organisations with 1-24 employees (15.5%), 100-999 employees (14.2%) and 5000+ employees (14%), while those with 25-99 employees constituted 8% of the total.

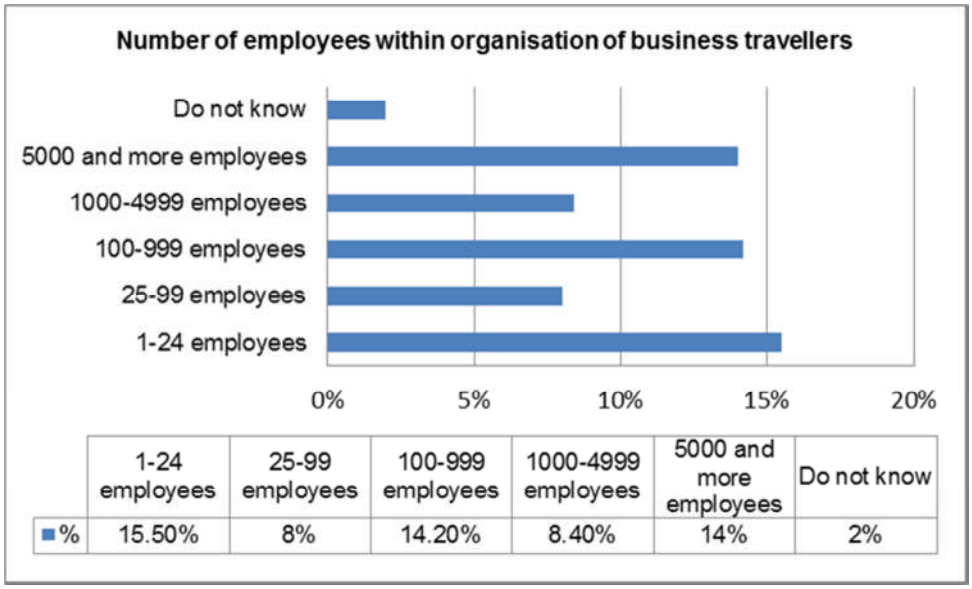


Figure 5.6-9 Number of employees within organisation of business travellers

5.7 Quantitative findings and discussion

5.7.1 Brand awareness

Each respondent was asked to name the first three airlines they could think of. The weighted average was calculated for the unaided brand-recall exercise. Airline brands that were recalled first, second and third received weighting scores of 5, 3, and 1 respectively. The calculation for the weighted average of the brand awareness recording is shown in Appendix M.

Once the weighted average for the airline brand-awareness was calculated, the airlines with highest combined weighted average scores were:

1. British Airways
2. EasyJet
3. Virgin Atlantic Airways
4. Ryanair
5. Qantas
6. COPA Airlines
7. Emirates
8. American Airlines
9. Singapore Airlines
10. Germanwings
11. Air Asia
12. Westjet
13. Lufthansa
14. Flybe
15. Air France
16. Continental Airlines
17. Air India
18. Jet Airways
19. Cathay Pacific Airways
20. Air Europa

There are two dimensions to recording brand awareness: breadth and depth (Keller, 2001). In this research, brand awareness was recorded using only the

top-of-mind method. This method identifies the depth of airline brand awareness. After the weighted average score was calculated for airline brand awareness, it was the British Airways, EasyJet, Ryanair, Virgin Atlantic Airways and Qantas Airways brands that had the highest weighted average score for airline brand awareness. This suggests that, in this study, these five airline brands had the greatest depth of brand awareness amongst the respondents.

Of these five airline brands, EasyJet and Ryanair were the only two low-cost carrier brands, while British Airways, Virgin Atlantic Airways and Qantas Airways were full-service carrier brands.

5.8 The structure of airline brand equity

5.8.1 Principal component factor analysis

A principal component factor analysis was conducted to explore the structure of airline brand equity. To explore whether there is a significant relationship amongst the 21 airline brand perceptions' measures, a Measure of Sampling Adequacy (MSA) was conducted. The determinant of the correlation amongst airline brand perception measures was 0.000 (<0.00001) significant (at a 0.05 level of significance). This suggests that there is a correlation between airline brand perception measures. Such a correlation implies some underlying principal component in airline brand perception. The MSA suggests that those 21 measures are suitable for performing a principal component factor analysis in order to explore further the potential structure of airline brand equity.

The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (MSA) was conducted to determine whether the sample size was adequate (Field, 2009). KMO = 0.951 suggests that the sample size (n=550) is sufficient to represent the structure of airline brand equity. The diagonal elements of the anti-image correlation matrix of brand perception measures were all above the minimum 0.5, confirming the validity of the KMO test statistic (see Appendix N). Bartlett's test of sphericity was significant (p=0.000) (see Appendix N), at a 0.05 level of significance (Field, 2009) indicating that the relationships amongst brand perception measures are significant and that airline brand perception measures are suitable for performing principal component factor analysis (Field, 2009).

The latent root criteria suggest maintaining principal components that have Eigen values greater than one (Hair, 2010). There are three factors with Eigen values greater than 1. The Scree test is based on the Eigen value (y axis) by the number of factors (x axis) (Kim and Mueller, 1978). The Scree test suggested that, after three factors had been extracted, the variation in airline brand perception explained by the subsequent factors would contribute little to the overall structure of airline brand equity. This is illustrated in Figure 5.8-1.

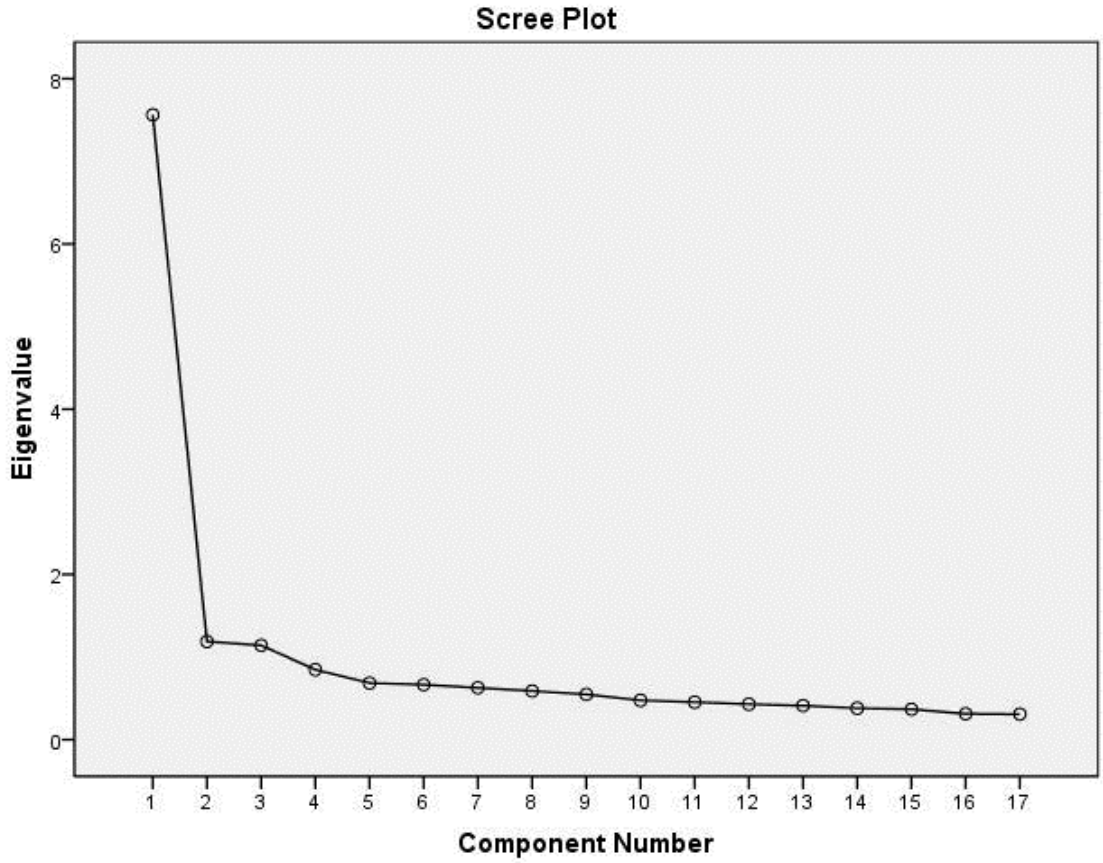


Figure 5.8-1 Scree plot

5.8.1.1 **Rotation method**

There are two factor rotation methods: orthogonal and non-orthogonal. Non-orthogonal rotation permits correlations amongst the measures, whereas orthogonal does not. The aim of rotation is to redistribute variances, which may reveal a more comprehensive structure in the principal components. This will

improve understanding of the factor solutions. The amount of variance is maintained across rotation methods.

The factors were rotated using the Varimax method (an orthogonal rotation). The Varimax method is preferred because it does not permit correlation amongst brand perception measures. This will result in distinctive factors that represent the structure of airline brand equity. Other rotation methods such as Oblimin and Quartimax were also attempted (Hair, 2010). Each method also suggests three distinctive factor solutions as already suggested by Varimax rotations. Oblimin rotation permits correlations between factors, yet it still suggests three factor solutions containing similar structures. The consistent structure revealed by different rotation methods shows that the factors are stable.

5.8.1.2 **Significance of each airline brand perception measure**

When conducting principal component factor analysis, the factor loading score of each airline brand perception measure indicates how much it contributes to each of the underlying principal components that represent airline brand equity (Hair, 2010). The factor loading score of each airline brand perception measure was examined. It was decided that a factor loading score of each airline brand perception measure of more than 0.5 would be considered more useful in explaining the principal component and thus the structure of airline brand equity (see Table 5.8-1). This is because airline brand messages often focus on similar themes, emphasising good customer service and innovative products.

There are four airline brand perception measures with a factor loading score of less than 0.5. These were excluded from the principal component factor analysis.

- ‘I would forgive (airline) if occasionally the product seemed sub-standard’
- ‘I understand what this (airline’s) brand is trying to tell me’
- ‘I can never go wrong flying with (airline)’;and
- ‘I would pay extra to fly (airline)’

5.8.2 Structure of airline brand equity

The principal component factor analysis illustrates the structure of airline brand equity. The three factors account for 58.1% of the variations in the data set.

5.8.2.1 **Factor 1 – brand perception**

The first factor explains 44.4% of the variation in airline brand perceptions. The first factor shows that airline brand equity is gained from being able to provide innovative products and good service consistently. This includes having service recovery procedures which ensure that, if a service fails, the problems encountered will be solved. All of which helps to create a distinctive brand (see Table 5.8-1).

5.8.2.2 **Factor 2 – brand loyalty**

The second factor explains 6.992% of the variation in airline brand perceptions. The second factor demonstrates the outcome of the first factor. The second factor shows that airlines that can deliver innovative products and good service consistently will enjoy the benefits of having positive brand equity. Airlines with positive brand equity will have a base of loyal customers who also generate word-of-mouth promotions for the airlines. The second factor highlights the importance of airline brands in communicating value-for-money benefits from the tangible products and services that the first factor has already pointed out (see Table 5.8-1).

5.8.2.3 **Factor 3 – brand awareness**

The third factor explains 6.714% of the variation in airline brand perceptions. This factor contains only one airline brand perception measure: 'I see a lot of advertisements about (airline)', but it explains a similar proportion of variations in brand perceptions as Factor 2 (6.992%) and contributes to the overall structure of airline brand equity (see Table 5.8-1).

The factors were rotated using the Varimax method. It has already been mentioned that this method disallows correlation between factors. The third factor is orthogonal to the first and the second factors. The third factor suggests that seeing more or fewer airline advertisements has no relationship to the

attitudes represented in factors one and two. Hence, this shows the importance of airlines' advertisements in generating brand awareness. This confirms the initial findings in the exploratory study and highlights the role of airline advertisements in generating brand awareness. This demonstrates the importance of airline advertising (Factor 3) as an important contributor to airline brand equity.

Table 5.8-1 shows the outcome of the principal component factor analysis that was conducted and rotated using the Varimax method. This table shows the factors that represent the structure of airline brand equity, the communality score of each airline brand perception measure, and the variations explained by each factor.

Table 5.8-1 Results of principal component factor analysis with the Varimax rotation of airline brand perceptions

Airline brand perception measures	Factor loading			Communality
	Factor 1	Factor 2	Factor 3	
Factor 1 – Brand perception				
'I hold (airline) in high regard'	0.784			0.667
'(airline) cares about its customers'	0.745 .			0.623
'When I think of flying with (airline) I have positive thoughts'	0.723			0.628
'If a problem with (airline's) service arose, (airline) would fix it quickly'	0.680			0.524
'(airline) lives up to its promises'	0.663			0.628
'I can count on (airline)'	0.644			0.614
'(airline)'s stands out from its competitors'	0.638			0.504
'I would recommend flying with (airline)'	0.622			0.639
'(airline) is innovative'	0.531			0.502
'airline) offers clear advantage vs the competition'	0.508			0.536
Factor 2 - Loyalty				
'I am strongly committed to fly with (airline)'		0.712		0.615
'(Airline) consistently satisfies me.'		0.676		0.654
'I talk about (airline) with my friends'		0.668		0.562
'I plan to fly with (airline) in the future'		0.656		0.503
'Flying with (airline) represents excellent value for money'		0.645		0.505
'I have happy memories of flying with (airline)'		0.627		0.628
Factor 3 – Brand awareness				
'I see a lot of advertisements about (airline)'			0.782	0.623
Eigenvalue	7.563	1.189	1.181	
Variance	44.486%	6.992%	6.714%	
Cumulative variance	44.486	51.4178%	58.192%	
Number of items	10	6	1	

5.8.3 Confirmatory analysis of invalid cases and outliers

Invalid cases and outliers are used in a separate principal component factor analysis to determine whether the factors that represent the structure of airline brand equity are similar to those three factors identified by the principal component factor analysis on valid cases. The aim of the comparison of factors is to determine if valid and invalid cases have the same perceptions of airline brands. This additional principal component factor analysis, using invalid cases and outliers, follows the same analytical procedure and rotation method as earlier analysis using the valid cases.

When the principal component factor analysis was conducted using invalid cases and outliers suggest a two-factor solution that represents the structure of airline brand equity. In combination, both factors explain 67.602% of variations amongst airline brand perceptions that contribute towards the structure of airline brand equity.

The first factor explains 61.366% of the variations amongst the airline brand perceptions. This first factor shows that airline brand equity is gained by providing consistently innovative products and good service. The second factor explains 6.236% of the variations amongst airline brand perceptions that contribute towards the structure of airline brand equity. This second factor shows that those airlines that can provide good service and innovative products consistently will establish a base of loyal customers that generate word-of-mouth promotion for the airline, and are willing to pay a premium to fly with the airline.

Each principal component factor analysis on valid and invalid cases provided three and two factor solutions respectively. In both analyses, the first factor highlights how airline brand equity is gained from being able to provide consistently innovative products and good service. The second factor demonstrates that airlines that can provide innovative products and good service will consistently enjoy the benefits of having established a base of loyal customers that generate word-of-mouth promotions for the airline.

In the principal component factor analysis on invalid cases, the communality score indicated that the number of variations explained by each airline brand perception, in conjunction with other brand perceptions, measure of: 'I see a lot of advertisements of (airline)' was 0.353. This low communality score suggests that airline advertisements contribute little to the structure of airline brand equity. This contrasting perspective on airlines' advertisements contradicts the evidence from the exploratory study which showed that airline advertisements play a crucial role in generating brand awareness. This evidence from the exploratory study (in Part I) is further supported by the principal component factor analysis using valid cases to demonstrate the importance of airline advertisements in generating brand awareness. The third factor contains only one airline brand perception measure: 'I see a lot of advertisements about (airline)'. It explains 6.714% of the variation amongst airline brand perceptions. By comparison, factor two emphasising the outcome of being able to provide innovative products and good service, contains six airline brand perception measures. Factor 2 explains 6.992% of the variation in brand perceptions and contributions towards the structure of airline brand equity. The evidence from both the exploratory study, using purposive sampling, and an online questionnaire using a larger sample, confirms that airline brand perceptions of invalid cases do not represent a general construct of an airline customer based-brand equity. This confirms the decision to exclude them from the overall sample (see Table 5.8-2 and Appendix X).

Table 5.8-2 shows the outcome of the principal component factor analysis conducted on cases identified as either invalid or outliers. This table shows the factors that represent the structure of airline brand equity amongst outliers and invalid cases, the communality score of each airline brand perception measure, and the number of variations explained by each factor.

Table 5.8-2 Component of airline brand equity amongst outliers and invalid cases

Airline brand perception measures	Factor loading		Communality
	Factor 1	Factor 2	
'I hold (airline) in high regard'	0.845		0.757
'(airline) cares about its customers'	0.824		0.742
'When I think of flying with (airline), I have positive thoughts'	0.818		0.715
'(airline) lives up to its promises'	0.816		0.793
'I can count on (airline)'	0.794		0.743
'I would recommend flying with (airline)'	0.789		0.725
'If a problem with (airline)'s service arose, (airline) would fix it quickly'	0.781		0.696
'(airline) stands out from its competitors'	0.710		0.639
'(airline) is innovative'	0.684		0.661
'I can never go wrong flying with (airline)'	0.683		0.642
'(airline) offers clear advantage vs the competition'	0.678		0.630
'I understand what (airline) is trying to tell me'	0.668		0.641
'(airline) consistently satisfies me'	0.663		0.687
'I plan to fly (airline) in the future'	0.601		0.567
'Flying with (airline) represents excellent value for money'	0.573	0.559	0.635
Factor 2			
'I would forgive (airline), if occasionally, the product seemed sub-standard		0.801	0.661
'I talk about (airline) with my friends'		0.778	0.564
'I am strongly committed to fly with (airline) in the future'		0.694	0.663
'I would pay extra to fly (airline)'		0.633	0.560
Eigenvalue	11.660	1.185	
Variance(%)	61.366%	6.236%	
Cumulative variance	61.366%	67.602%	
Number of items	15	4	

It was decided to keep the three factor solutions suggested by the principal component factor analysis on the valid cases. The three factors explain a total of 58.192% of variations in airline brand perceptions. These brand perceptions were collected from 43 airlines: British Airways (32.9%), Emirates (15.1%), Virgin Atlantic Airways (15.1%), and Singapore Airlines (7.5%). The 39 other airlines in combination accounted for less than 5%. These four airlines adopt different branding strategies: multiple branding (British Airways), descriptive (Singapore Airlines and Emirates) and compound branding (Virgin Atlantic Airways). However the three-factor solution suggested still reflects the general construct of a customer-based brand equity with brand awareness (factor 3) and brand perceptions (factor 1) creating a differential outcome (factor 2).

These three factors, that constitute the structure of airline brand equity, are represented by factor scores. A factor score is a combined score for each respondent on each factor identified. The factor score was calculated using the Anderson-Rubin method, because it does not permit correlation amongst factors (Field, 2009). Multicolinearity was not a major concern, because factors were already rotated using the Varimax method, which does not allow correlation between factors. Factor scores were used in a cluster analysis to explore whether there were distinct groups of passengers with similar airline brand perceptions.

5.9 Groups of airline passengers – based on airline brand perceptions

5.9.1 Cluster analysis

Cluster analysis was conducted using factor scores of the valid cases (n = 550) in order to identify groups of airline passengers with similar airline brand perceptions. Each case (respondent) had three factor scores and each factor score represented their perceptions of airline brands. Thus, the clusters of airline brand perceptions were characterised by the three factors that represented the structure of airline brand equity.

5.9.2 Preliminary analysis

Before undertaking the cluster analysis, outliers based on similarity measures were explored. In this research on airline brand equity, the challenge for airlines is to create a distinctive brand. Therefore, outliers based on similarity measures were defined as cases that were most different from others. Dissimilarity values were calculated based on Euclidean distance in order to preserve the natural pattern of the data (Hair, 2010). Distance measure was preferable to correlational measure because it maintained the magnitude of each respondent's perceptions towards airline brands. Each respondent's dissimilarity value was a combined score of absolute differences from the means, amongst all brand perception measures. Cases with high dissimilarity values were regarded as potential outliers. The calculations of the dissimilarity scores are shown in Appendix W. These were monitored in the hierarchical clustering process.

5.9.3 Hierarchical clustering

The hierarchical method was used first to explore how each case forms clusters. The aim of conducting hierarchical clustering analysis was to explore the clustering process and to see how cases combined to form clusters and to identify potential numbers of clusters on which the non-hierarchical clustering method would focus. When the hierarchical method was used, each case started as a single case cluster. At each step, clusters were joined depending

on how similar they were. Instead of identifying a general pattern, similarity was measured on an absolute Euclidean distance because the degree of similarity was important. When two clusters were combined, the coefficient of heterogeneity indicated the degree of change that had taken place. Ward's method was used because it minimised within-group variation, while maximising between-group differences (Hair, 2010). It was most suitable for this research (which adopted a segmentation approach) in wanting to identify the most distinctive clusters of airline brand perceptions.

When potential outliers and non-potential outliers were combined in the early stages of the clustering process, this did not result in a high percentage increase in heterogeneity, which indicated that those cases were not outliers because their combined impact was still similar to other cases.

Airlines have segmented the market, by trip-purpose (business or leisure), and trip-length (short-haul or long-haul). It was decided that five cluster solutions would be the maximum number of clusters (which represent brand perception groups) to be considered. This upper limit expanded on the four bases by which airlines already segment the market.

Table 5.9-1 is the agglomeration schedule demonstrating the last five stages of the hierarchical clustering process. The percentage change in heterogeneity at each clustering stage was monitored. The largest change in heterogeneity occurred when four clusters combined to form three clusters (26.603%). In contrast, when five clusters combined to form four clusters, this resulted in only a slightly smaller proportionate increase in heterogeneity (23.258%). Three-cluster solutions are too few for the exploratory purpose of this hierarchical cluster analysis. It was decided to use four-cluster solutions as a seed-point on which hierarchical clustering would focus next, because it represented a high degree of heterogeneity and flexibility.

Table 5.9-1 Agglomeration schedule for the valid cases during the hierarchical cluster analysis

Stage	Cluster 1	Combined with	Coefficient	Number of clusters after combining	Differences	Proportionate increase in heterogeneity to the next stage
545	3	7	788.799	5	82.167	10.417%
546	15	23	870.9656	4	202.569	23.258%
547	1	6	1073.534	3	285.591	26.603%
548	1	15	1359.126	2	287.874	21.181%
549	1	3	1647	1		

5.9.4 Non-hierarchical clustering

In the hierarchical clustering process, clusters formed in the early stages were not reassigned to other clusters. In contrast, in the non-hierarchical process, a K-means algorithm can reassign cases to clusters to the nearest centroid. The use of these methods afforded the unique advantage of each method.

The hierarchical method helped to identify the ideal number of cluster solutions that best represent differences amongst the clusters (in this case, clusters of airline brand perceptions).

The meanings of the clusters of airline brand perceptions were interpreted by comparing the mean centred values of each cluster. In this process, the most distinguishing feature of each cluster was defined by the highest or the lowest mean centred value of that cluster.

Table 5.9-2 shows the mean-centred values of each airline brand perception clusters: 'Difficult to talk to customers', 'Hard to please customers', 'Loyal customers' and Asking for consistency customers' on the three factors that represent the structure of airline brand equity.

Table 5.9-2 Mean-centred value of airline brand perception clusters

Variables	Mean-centred values cluster			
	'Difficult to talk to customers '	'Hard to please customers'	'Loyal customers'	'Asking for consistency customers'
Factor 1: Brand perception	0.23303	-1.56194	0.19328	0.39037
Factor 2: Brand loyalty	0.12392	-.18047	0.77458	-1.23696
Factor 3: Brand awareness	-1.13900	-0.00435	0.58683	0.58268
Cluster sample size	160	78	189	123
% of the respondents	29%	14%	34%	22%

5.9.4.1 **Asking for consistency customers (n=123/550)**

This cluster accounts for 22% of the respondents. The members of this cluster have the most positive perceptions of airline brands, but they also have the most negative after-flight experience. These respondents are least likely to fly with the same airline (i.e. be brand loyal). This perspective may be an outcome of mishaps such as poor service, failed personal on-board entertainment system, flight delays and mishandled baggage. It shows that members of this segment seek consistent service throughout their journey. It means that in order to appeal to this cluster, an airline brand needs to emphasise and deliver a consistent level of service and innovative products. This segment is highly likely to have seen airline advertisements. Hence the high level of airline brand awareness.

5.9.4.2 **Loyal customers (n=189/550)**

This cluster accounts for 34% of the respondents. The members of this cluster have moderately positive perceptions of airline brands. They are most likely to fly with the same airline and generate word-of-mouth promotions for airlines. It is their experience of airlines' tangible products and services, and their

consequent level of satisfaction, that will influence their future choice of airline the most. They are similar to the 'Asking for consistency customers' cluster, in that they are most likely to have seen airlines' advertisements. The difference is that 'Loyal customers' clusters seek fewer benefits from airlines' tangible products and service. In order to appeal to this cluster, airline brands need to provide both innovative tangible products and good service consistently.

5.9.4.3 **Hard to please customers (n=78/550)**

This cluster accounts for 14% of the respondents. The members of this cluster have the lowest perceptions of airline brands. They are the most dissatisfied with airlines' products and services. They are less likely to repeat airline choice and also less likely to have seen airlines' advertisements, which indicates the difficulty in communicating with members of this cluster.

5.9.4.4 **Difficult to talk to customers (n = 160/550)**

This cluster accounts for 29% of the respondents. The members of this cluster are most similar to 'Loyal customers' on two dimensions. Firstly, both clusters ('Difficult to talk to customers' and 'Loyal customers') hold moderate perceptions of airline brands, and secondly, it is their level of satisfaction that will influence their future choice of airline. It means that airline brands need to (similar to the needs of 'Loyal customers' cluster) provide both innovative products and consistent service. The defining characteristic of this cluster is that they are least likely to have seen airline advertisements. It means that members of this cluster have a limited level of airline brand awareness.

5.9.5 Assessing criterion validity of clusters of airline brand perceptions

The criterion validity of the clusters of airline brand perceptions was assessed in an One-way analysis of variance (ANOVA) using likelihood to recommend a 'most like to fly with' airline as the dependent variable and four clusters of airline brand perceptions ('Asking for consistency customers', 'Loyal customers', 'Hard to please customers' and 'Difficult to talk to customers') as independent variables to assess the criterion validity of clusters. The aim of this ANOVA was

to determine whether the four clusters of airline brand perceptions are useful predictors of future airline choice.

There is a significant difference amongst the four clusters of airline brand perceptions (at a 0.05 level of significance). This indicates that the four clusters of airline brand perception are valid indicators of airline brand equity, because airline brand perceptions can influence future airline choice ($F = 46.572$, $p = 0.000$). In contrast, these four clusters of airline brand perceptions are only useful predictors for business travellers' long-haul trip frequency ($F = 6.232$, $p = 0.000$) (see Table 5.9-3, and Appendix P).

The assessment of criterion validity explains the difficulty for airline brands in appealing to short-haul travellers (both business and leisure travellers) and long-haul leisure travellers. In the short-haul route-market, it also explains why it is difficult for full-service carrier brands to provide suitable value propositions that differentiate them from low-cost carrier brands.

Table 5.9-3 Univariate F* test results assessing cluster solution criterion validity

Independent variables	Univariate F*	Significance
Leisure short-haul (less than 5 hours)	0.146	0.932
Leisure long-haul (more than 5 hours)	2.187	0.089
Business short-haul (less than five hours)	1.715	0.164
Business long-haul (more than 5 hours)	6.232	0.000
Likelihood to recommend	46.572	0.000

5.10 Profiling of the clusters

The non-hierarchical cluster analysis identified four distinct groups of passengers with similar airline brand perceptions. These four clusters are:

- 'Loyal customers'
- 'Hard to please customers'
- 'Asking for consistency customers'; and
- 'Difficult to talk to customers'

These clusters were profiled against other demographic variables in order to better understand the characteristics of the members of each cluster.

5.10.1 Gender

There is no association at a 0.05 level of significance between the four clusters of airline brand perceptions and gender χ^2 (3) = 2.573, $p < 0.462$ (see Table 5.10-1 and Appendix T.1). In comparison with the findings of Westwood et al., (2000), which suggest a specific brand message for each gender, this research finds no evidence of a gender-specific brand message.

5.10.2 Trip purpose

There is a significant association between the four clusters of airline brand perceptions and the trip purpose (business or leisure) χ^2 (3) = 25, $p < 0.000$ (see Table 5.10-1 and Appendix T.2). At a 0.05 level of significance, the 'Asking for consistency customers' cluster is more likely to consist of leisure travellers than business travellers. This suggests that, for leisure travellers, product and service consistency is an important factor when choosing an airline.

5.10.3 'Most like to fly with' airline

There is a significant association at a 0.05 level of significance between the four clusters of airline brand perceptions and the top four airlines that respondents identified as 'most like to fly with'. These were: British Airways, Emirates, Virgin Atlantic Airways and Singapore Airlines. χ^2 (46.910) = 12, $p < 0.000$ (see Table 5.10-1 and Appendix T.4).

The ‘Hard to please customers’ cluster is more likely to fly with British Airways, but they are less likely to fly with Emirates. This suggests that in order for British Airways to establish brand equity, brand value propositions need to deliver innovative products and a high standard of customer service. In contrast, the ‘Asking for consistency customers’ cluster is more likely to fly with Emirates than other clusters. This suggests that in order for Emirates to establish brand equity, brand value propositions need to emphasise product and service consistency.

In section 5.9.4.3, it was demonstrated that members of the ‘Hard to please customers’ cluster have the lowest perceptions of airline brands. They are also least likely to repeat their choice of airline. This may indicate that it is difficult to establish brand loyalty amongst members of this cluster. This is the smallest of the four clusters and therefore may not be a viable segment to pursue.

5.10.4 Age

There is no association at a 0.05 level of significance between the four clusters of airline brand perceptions and respondents’ age χ^2 (12) = 17.311, $p < 0.138$ (see Table 5.10-1 and Appendix T.3).

In section 5.6.2, it was identified that the online questionnaire attracted a high proportion of respondents aged between 55-64 years of age (40.7%). The lack of association between the respondents’ age and airline brand perceptions indicates that the perceptions that were collected in the online questionnaire were not influenced by the respondents’ age. This lack of association also illustrates that the age of the respondents and airline brand perceptions are not related. This suggests that airline brand messages need not vary according to the age of airline passengers.

In a confirmatory analysis, the associations between the respondents’ age and respondents’ status (valid or invalid/outliers) were also explored. There was no association between age of respondents and their status as either valid or invalid (χ^2 (5) = 10.997, $p < 0.051$ (see Appendix T.16). This reiterates that it is not crucial for airline brand message to vary by age.

5.10.5 Main decision-maker – leisure trips

There is a significant association at a 0.05 level of significance between the four clusters of airline brand perceptions and the main decision-maker for airline choice for leisure trips χ^2 (9) = 17.455, $p < 0.042$ (see Table 5.10-1 and Appendix T.6). This indicates that the choice of airline by leisure travellers in the 'Loyal customers' cluster is less likely to be chosen by 'other'. This suggests that the brand message can be specifically targeted to members of this cluster because they are the main decision-makers.

5.10.6 Main decision maker – business trips

There is a significant association at a 0.05 level of significance between the four clusters of airline brand perceptions and the main decision-maker for airline choice for business trips $\chi^2(9) = 25.673$, $p < 0.002$ (see Table 5.10-1 and Appendix T.7).

At a 0.05 level of significance, business travellers in the 'Hard to please customers' cluster are less likely to use the travel department within their organisation. This suggests that business travellers who are members of this cluster chose the airline themselves. However, because business travellers' travel plans are often driven by their organisation's travel policy, this indicates the difficulty airline brands face in communicating with business travellers in this cluster.

5.10.7 Trip frequency – short-haul leisure trips

There is a significant association (at a 0.05 level of significance) between the four clusters of airline brand perceptions and short-haul leisure trips frequency χ^2 (12) = 23.536, $p < 0.024$ (see Table 5.10-1 and Appendix T.8). The 'Loyal customers' group is most likely to be making between six to 10 short-haul, leisure trips. This suggests that 'Loyal customers' clusters are frequent travellers and are familiar with airline short-haul products and services.

5.10.8 Trip frequency – long-haul leisure trips

There is a significant association (at a 0.05 level of significance) between the four clusters of airline brand perceptions and long-haul leisure trips frequency χ^2 (12) = 28.237, $p < 0.005$ (see Table 5.10-1 and Appendix T.9). The 'Loyal customers' cluster is likely to make 11 or more long-haul return trips (of more than five hours). The 'Loyal customers' cluster is characterised by having the most positive perceptions of airline brands, and is most likely to fly with the same airline. Their high level of long-haul travel illustrates that they are most familiar with airline products for long-haul travellers. This suggests that on-going innovation in airline long-haul products and services may help to further enhance brand associations and brand loyalty between the airlines and members of this cluster.

Table 5.10-1 shows that, amongst the members of the 'Loyal customers' cluster 10.1% and 30.7% come from Socio-economic groups A (upper middle class) and B (middle class) respectively. The CAA's statistics show that the residents of the UK make on average only two leisure trips per year (Civil Aviation Authority, 2008) . The CAA suggests that trip frequency may be linked to the level of total household income, number of inhabitants within the household and the number of properties owned overseas. This suggests that high trip frequency made by the members of the 'Loyal customers' cluster may be attributed to their total combined household income and overseas home ownership.

5.10.9 Trip frequency – short-haul business trips

There is no association between the four clusters of airline brand perceptions and short-haul business trip frequency χ^2 (12) = 15.202, p = 0.231 (see Table 5.10-1 and Appendix T.10). This illustrates why it is difficult for airline brands to develop a positive brand association in the short-haul market. This also shows the difficulty that full-service carrier brands have in attracting short-haul business travellers. This demonstrates the difficulty full-service carrier brands such as British Airways and Malaysia Airlines have in distinguishing their brands

from low-cost carrier brands such as: EasyJet and Air Asia in the short-haul market.

5.10.10 Trip frequency – long-haul business trips

There is a significant association at a 0.05 level of significance between the four clusters of airline brand perceptions and long-haul business trip frequency χ^2 (12) = 23.8945, p = 0.021 (see Table 5.10-1 and Appendix T.11). Although the 'Loyal customers' cluster have positive perceptions of airline brands and are most likely to fly with the same airline, they only make one or two long-haul business trips per year. They do not engage with airlines brands regularly. This suggests the difficulty for full-service carrier brands in developing brand association with long-haul business travellers.

5.10.11 Employment status

There is no significant association at a 0.05 level of significance between the four clusters of airline brand perceptions and and employment status χ^2 (21) = 21.080, p $<$ 0.454 (see Table 5.10-1 and Appendix T.12). In section 5.6.8 , it was demonstrated that the online questionnaire attracted a high proportion of retirees (27.3%), while the highest proportion of respondents were in full time employment (44%). The lack of association between airline brand perception and employment status illustrates that the airline brand perceptions collected in the online questionnaire were not biased by type of employment category. The lack of association also highlights the fact that airline brand message need not vary in emphasis according to employment status.

In a confirmatory analysis, the relationship between the respondents' employment status and respondents' status (as either valid or invalid/outliers' cases) was explored. There is still no significant association (at a 0.05 level of significance) between employment status and respondents' status (as being either valid or invalid/outliers' case) (χ^2 (7) = 5.555, p = 0.593) (see Appendix T.17). This reconfirms that airline brand message need not vary by occupation.

5.10.12 Size of organisation

There is no significant association at a 0.05 level of significance between the four clusters of airline brand perceptions and the size of organisations that they come from (χ^2 (15) = 17.512, p = 0.289) (see Table 5.10-1 and Appendix T.13). Business travellers from larger organisations generally enjoy a more relaxed travel policy. However, whether their brand perceptions are related to the size of their organisation is not apparent. The results in this study are different from those in Mason (2001), who found that business travellers from large organisations are more likely to have a managed travel policy. Consequently, they are more likely to choose a full-service carrier brand than a low-cost carrier brand.

5.10.13 Socio-economic groups

There is no significant association at a 0.05 level of significance between the four clusters of airline brand perceptions and socio-economic groups. This socio-economic grouping is based on the income of the head of household. This suggests that it is not necessary for airline brand messages to vary by socio-economic group (χ^2 (6) = 9.136, p = 0.166) (see Table 5.10-1 and Appendix T.14).

5.10.14 Nationality

There is no significant association at a 0.05 level of significance between the four clusters of airline brand perceptions and the nationality of respondents (χ^2 (6) = 9.136, p = 0.166) (see Table 5.10-1 and Appendix T.15). This suggests that it is not necessary for airline brand messages to vary according to the nationality of airline passengers.

Table 5.10-1 Significant customer cluster differences on demographic and socio-economic variables

Variables	Cluster 1: Hard to please customers (n=78)	Cluster 2: Loyal customers (n=189)	Cluster 3: Asking for consistency customers (n=123)	Cluster4: Difficult to talk to customers (n=160)	Significance level
Trip purpose: • **Business** • **Leisure**	59% 41%	60.8% 39.2%	33.3% 66.7%	48.8% 51.3%	χ^2 (3) = 25, p < 0.000
Gender: • **52.6% male** • **48.4% female**	52.6% 48.4%	53.4% 46.6%	44.7% 55.3%	48.8% 52.2%	χ^2 (3) = 2.573, p < 0.462
Age : • **18-24** • **25-34** • **35-44** • **45-54** • **55-64**	16.7% 9% 17.9% 16.7% 39.7%	10.6% 18.0% 18.0% 14.8% 38.6%	13.8% 7.3% 16.3% 14.6% 48%	8.1% 11.9% 23.1% 18.8% 38.1%	χ^2 (12) = 17.311, p < 0.138
Airlines: • **British Airways** • **Virgin Atlantic Airways** • **Emirates** • **Singapore Airlines** • **Other**	48.7% 10.3% 3.8% 7.7% 29.5%	33.9% 19% 17.5% 4.8% 24.9%	29.3% 14.6% 25.2% 10.6% 20.3%	26.9% 13.1% 10% 8.1% 41.9%	χ^2 (46.910) = 12, p < 0.000
Main decision maker – leisure trip: • **Self** • **Spouse and family members** • **Friends** • **Other**	72.7% 14.3% 3.9% 9.1%	86.8% 8.5% 2.1% 2.6%	70.5% 13.9% 4.1% 11.5%	77.6% 9% 4.5% 9%	χ^2 (9) = 17.455, p < 0.042
Main decision maker – business trip: • **Self** • **Travel Department (Within organisation)** • **Travel Management Company(External)** • **Other**	67.4% 17.4% 4.3% 10.9%	62.7% 31.4% 2.5% 3.4%	43.9% 41.5%l 7.3% 7.3%	41.8% 44.3% 0.0% 13.9%	χ^2(9) = 25.673, p < 0.002
Trip frequency leisure short-haul: • **1-2 return trips** • **3-5 return trips** • **6-10 trips** • **More than 11 trips** • **None**	49.4% 28.6% 5.2% 3.9% 13%	51.9% 22.8% 11.1% 3.7% 10.6%	54.9% 24.6% 1.6% 2.5% 16.4	51.9% 25.6% 3.2% 0.6% 18.6%	χ^2 (12) = 23.536, p < 0.024

Variables	Cluster 1: Hard to please customers (n=78)	Cluster 2: Loyal customers (n=189)	Cluster 3: Asking for consistency customers (n=123)	Cluster4: Difficult to talk to customers (n=160)	Significance level
Trip frequency leisure long-haul:					
• **1-2 return trips**	41.6%	41.3%	34.4%	36.5%	χ^2 (12) = 28.237, p < 0.005
• **3-5 return trips**	6.5%	12.2%	5.7%	7.7%	
• **6-10 trips**	0.0%	1.6%	0.8%	0.0%	
• **More than 11 trips**	0.0%	3.7%	0.0%	0.0%	
• **None**	51.9%	41.3%	59%	55.8%	
Trip frequency business short-haul:					
• **1-2 return trips**	50.0%	41.5%	61.0%	35.4%	
• **3-5 return trips**	8.7%	17.8%	12.2%	19%	χ^2 (12) = 15.202, p = 0.231
• **6-10 trips**	4.3%	7.6%	2.4%	6.3%	
• **More than 11 trips**	4.3%	10.2%	4.9%	5.1%	
• **None**	32.6%	22.9%	19.5%	34.2%	
Trip frequency business long-haul :					
• **1-2 return trips**	15.2%	28.0%	14.6%	11.4%	
• **3-5 return trips**	2.2%	9.3%	4.9%	3.8%	χ^2 (12) = 23.8945, p = 0.021
• **6-10 trips**	2.2%	2.5%	2.4%	0.0%	
• **More than 11 trips**	6.5%	5.9%	2.4%	1.3%	
• **None**	73.9%	54.2%	75.6%	83.5%	
Employment status:					
• **Employed full-time**	39.7%	48.1%	36.6%	46.9%	χ^2 (21) = 21.080, p < 0.454
• **Employed part-time**	10.3%	12.2%	9.8%	6.9%	
• **Self employed**	9.0%	7.9%	6.5%	9.4%	
• **Housewife/husband**	2.6%	2.1%	4.1%	6.3%	
• **Semi-retired**	2.6%	1.1%	0.8%	2.5%	
• **Retired**	28.2%	23.8%	35%	25.0%	
• **Student**	6.4%	3.7%	6.5%	1.9%	
• **Unemployed**	1.3%	1.1%	0.8%	1.3%	
Organisation size: number of employees:					
• **1-24 employees**	23.9%	21.7%	24.6%	29.7%	(χ^2 (15) = 17.512, p = 0.289)
• **25-99 employees**	23.9%	15.5%	6.2%	8.9%	
• **100-999 employees**	26.1%	21.7%	23.1%	22.8%	
• **1000-4999 employees**	4.3%	14%	13.8%	26.8%	
• **5000+ employees**	21.7%	23.3%	27.7%	18.8%	
• **Don't know**	0%	3.9%	4.6%	3%	
Nationality:					
• **British**	97.4%	89.9%	95.9%	95.6%	χ^2 (6) = 9.136, p = 0.166
• **Citizen of EU nations**	2.6%	7.4%	3.3%	3.1%	
• **Other**	0.0%	2.6%	0.8%	1.3%	
Socio-economic groups:					
• **A**	10.3%	10.1%	13.0%	11.9%	χ^2 (15) = 18.926, p = 0.217
• **B**	26.9%	30.7%	40.7%	35%	
• **C1**	28.2%	34.9%	29.3%	31.9%	
• **C2**	16.7%	9%	4.9%	9.4%	
• **D**	5.1%	2.6%	5.7%	4.4%	
• **E**	12.8%	12.7%	6.5%	22.2%	

5.10.15 Travelled in business or first class

There is a significant association at a 0.05 level of significance between the four clusters of airline brand perceptions and whether or not they have travelled in business or first class over the last 12 months. χ^2 (3) = 35.476, $p < 0.000$ (see Table 5.11-1 and Appendix T.5). The 'Loyal customers' cluster is more likely to have travelled in first or business class. In contrast, the 'Asking for consistency customers' cluster is less likely to have travelled in first or business class. In other words, they are more likely to be economy class travellers.

In section 5.10.2, it was demonstrated that the members of the 'Asking for consistency customers' cluster are more likely to be leisure travellers. This suggests that, in order to appeal to the 'Asking for consistency customers' cluster which is comprised of leisure travellers who have not travelled in business class, brand messages need to emphasise product and service offerings in economy class. In contrast, airlines' premium products in business and first class are more likely to be attractive to the members of the 'Loyal customers' cluster.

5.11 Use of premium products

In section 5.10.15, it was demonstrated that the members of the 'Loyal customers' cluster are more likely than other clusters to have travelled business or first class. However, there is no significant association at a 0.05 level of significance between the four clusters of airline brand perceptions and the use of any airline premium products (see Table 5.11-1 and in Appendix U). The lack of association between airline brand perceptions and airline premium products shows that these products do not enhance airline brand perceptions for premium services.

Table 5.11-1 Significant customer cluster differences on use of business and first class and premium products

Variables	Cluster 1: Hard to please customers (n=78)	Cluster 2: Loyal customers (n=189)	Cluster 3: Asking for consistency customers (n=123)	Cluster 4: Difficult to talk to customers (n=160)	Significance level
Travelled in business or first class:					
• **Yes**	23.1%	40.7%	13.0%	20.0%	χ^2 (3) = 35.476, p < 0.000
• **No**	76.9%	59.3%	87.0 %	80.0%	
Free tickets from frequent flyer programme:					
• **Have not used**	61.1%	62.3%	50%	53.1%	χ^2 (6) = 3.029, p < 0.805
• **Have used**	22.2%	27.3%	31.3%	37.5%	
• **Do not recall using**	16.7%	10.4%	18.8%	17.6%	
Priority reservation line:					
• **Have not used**	33.3%	35.1%	50.1%	46.9%	χ^2 (6) = 6.901, p < 0.330
• **Have used**	33.3%	49.4%	37.5%	43.8%	
• **Do not recall using**	33.3%	15.6%	12.5%	9.4%	
Exclusive check-in desks:					
• **Have not used**	27.8%	16.9%	12.5%	18.8%	χ^2 (6) = 4.640, p < 0.591
• **Have used**	61.1%	79.2%	87.5%	75.0%	
• **Do not recall using**	11.1%	3.9%	0%	6.3%	

Variables	Cluster 1: Hard to please customers (n=78)	Cluster 2: Loyal customers (n=189)	Cluster 3: Asking for consistency customers (n=123)	Cluster 4: Difficult to talk to customers (n=160)	Significance level
Priority boarding:					
• **Have not used**	16.7%	14.3%	12.5%	12.5%	χ^2 (6) = 2.834, p < 0.829
• **Have used**	72.2%	79.2%	87.5%	84.4%	
• **Do not recall using**	11.1%	62.5%	0%	12.5%	
Exclusive airport lounge:					
• **Have not used**	16.7%	19.5%	18.8%	21.9%	χ^2 (6) = 5.813, p < 0.444
• **Have used**	66.7%	77.9%	75%	68.8%	
• **Do not recall using**	16.7%	2.6%	6.3%	9.4%	
On-board amenity kit:					
• **Have not used**	33.3%	24.7%	12.5%	31.3%	χ^2 (6) = 4.468, p < 0.614
• **Have used**	44.4%	62.3%	75.0%	53.1%	
• **Do not recall using**	22.2%	13.0%	12.5%	15.6%	
Priority deplaning:					
• **Have not used**	27.8%	35.1%	43.8%	43.8%	χ^2 (6) = 2.404, p < 0.879
• **Have used**	44.4%	46.8%	37.5%	40.6%	
• **Do not recall using**	27.8%	18.2%	18.8%	15.6%	
Fast track immigration:					
• **Have not used**	44.4%	49.4%	31.3%	62.5%	χ^2 (6) = 9.275, p < 0.159
• **Have used**	27.8%	37.7%	37.5%	31.3%	
• **Do not recall using**	27.8%	13.0%	31.3%	6.3%	
Priority bag delivery:					
• **Have not used**	50.0%	42.9%	50.0%	53.1%	χ^2 (6) = 7.169, p < 0.305
• **Have used**	22.0%	40.3%	18.8%	37.5%	
• **Do not recall using**	27.8%	16.9%	31.3%	9.4%	

Variables	Cluster 1: Hard to please customers (n=78)	Cluster 2: Loyal customers (n=189)	Cluster 3: Asking for consistency customers (n=123)	Cluster 4: Difficult to talk to customers (n=160)	Significance level
Arrival lounge:					
• **Have not used**	38.9%	33.8%	31.3%	43.8%	χ^2 (6) = 4.659, p < 0.588
• **Have used**	50%	57.1%	43.8%	46.9%	
• **Do not recall using**	11.1%	9.1%	25%	9.34%	

5.12 Summary of cluster profiles

The profiling of the four clusters of airline brand perceptions against demographic variables has provided insights into the characteristics of the members of each group.

- The profiling shows that service consistency in product and service provision is an important purchasing criterion for leisure travellers (section 5.10.2).

- The British Airways brand is most likely to attract airline passengers with the poorest perceptions of products and services. In contrast, the Emirates brand is likely to attract those passengers who emphasise a high degree of product and service consistency (section 5.10.3).

- The lack of association between respondents' gender, age, and employment status and airline brand perceptions indicates that it is not essential for an airline brand message to vary its emphasis by those demographic attributes (sections 5.10.1, 5.10.4, and 5.10.11 respectively).

- The provision of airlines' premium products and services in business and first class does not enhance airline brand perceptions. It is the members of the 'Loyal customers' cluster that are more likely to have travelled in business and first class. Thus, airline brand messages emphasising premium products should be targeted at members of this cluster (section 5.10.15).

- By comparison, the 'Asking for consistency customers' cluster is less likely to have travelled in business and first class. This suggests that the airline brand message for this cluster should emphasise airline general products and services that are available to economy class passengers.

- For business trips, the ‘Hard to please customers’ cluster is least likely to use the travel department within their organisation. This suggests that business travellers in this cluster choose the airline themselves.

- For leisure trips, the ‘Loyal customers’ cluster’s choice of airline is less likely to be influenced by others. This suggests that members of this cluster choose the airline themselves.

- The profiling of the four clusters of airline brand perceptions has illustrated that the ‘Loyal customer’ cluster is the prime market segment for airline brands to pursue. However, because the members of this cluster comprise airline passengers with wide ranging trip characteristics, it is difficult for airline brands to meet their needs.

- The lack of association between airline brand perceptions and business travellers in the short-haul market illustrates the difficulty full-service carrier brands face in communicating differences from low-cost carrier brands in the short-haul market.

- The ‘Loyal customer’ cluster comprises short-haul leisure travellers making between 6 – 10 return short-haul leisure trips (section 5.10.7). This suggests that they are highly familiar with airline short-haul products and services. Airline brand value propositions should emphasise products and services appropriate for short-haul travel needs.

- The ‘Loyal customer’ cluster comprises travellers who make 11+ long-haul leisure trips (section 5.10.8). This suggests that brand value propositions for this group need to emphasise products and service items suitable for the needs of long-haul travellers.

- There is a lack of association between airline brand perceptions and business travellers' short-haul trip frequency (section 5.10.9). This illustrates the difficulty full-service carrier brands face in developing brand associations with short-haul business travellers. As was suggested in section 5.10.15, the 'Loyal customer' cluster is most likely to have travelled in business or first class. However, the lack of association between airline brand perceptions and airline premium products illustrates the difficulties that full-service carrier brands face in attracting business travellers.

- The 'Loyal customer' cluster is more likely than other clusters to make 1-2 long-haul business trips (section 5.10.10). This illustrates that airline brand message aiming at long-haul business travellers should target the 'Loyal customer' cluster. In order to meet the needs of the 'Loyal customer' when travelling long-haul on business, brand value proposition needs to deliver appropriate benefits suitable for long-haul travel requirements. Similarly, in order to meet the needs of long-haul business travellers in this cluster, airline brand value propositions need to deliver suitable products for long-haul business travellers.

The profiling of the clusters of airline brand perceptions has illustrated the difficulties that airline brands face in meeting the needs of the 'Loyal customer' cluster which is comprised of airline passengers with different trip characteristics. The difficulty that airline brands face in developing an association with airline passengers is evidenced by the lack of association between this lucrative market segment and the four, most favoured airline brands, British Airways, Virgin Atlantic Airways, Emirates and Singapore Airlines. The lack of brand association between the 'Loyal customers' cluster and any of the four major airline brands that were collected in the online questionnaire suggests a need for these airline brands to consider how they might establish an association with this lucrative market segment. This will be achieved by exploring the second research objective: *'To propose tactical and strategic approaches that may be adopted by airlines to build brand equity*'.

5.13 Identifying which airline product determinant attributes discriminate between airline brands

Each airline's products, services and branding strategies are different. This means that the activities that each airline can undertake in order to build brand equity will also be different. Thus, this research objective - *to propose tactical and strategic approaches that may be adopted by airlines to build brand equity* - will be explored in two steps.

5.13.1 Multiple discriminant analysis

In the first step, a multiple discriminant analysis was conducted using airline product determinant attributes as independent variables, while four airline brands (British Airways, Virgin Atlantic Airways, Emirates and Singapore Airlines) were used as dependent variable. The aim of conducting the first multiple discriminant analysis was to identify the dimensions of airline product determinant attributes that are most different amongst the four airline brands.

In the second step (in a separate multiple discriminant analysis), airline product determinant attributes were also used as independent variables, while the four clusters of airline brand perceptions (i.e., 'Hard to please customers', 'Difficult to talk to customers', 'Asking for consistency customers' and 'Loyal customers') were used as dependent variable. The aim of conducting the second multiple discriminant analysis was to identify the dimensions of determinant attributes that were most different amongst the four clusters of airline brand perceptions.

5.13.2 Multiple discriminant analysis – stepwise method

A multiple discriminant analysis was conducted in order to identify the dimensions that distinguish between the airline brands. There are two ways of conducting a multiple discriminant analysis: stepwise and simultaneous estimation methods. The stepwise method was used because a large number of attributes were examined. Twenty-four airline product determinant attributes were collected in the online questionnaire. Airline brand equity may derive from both tangible sources, such as the benefits and satisfaction gained from using airlines' products, and intangible sources such as services provided by airline

employees and outsourced workers. This research assumes that each airline is still responsible for the quality of service provided by outsourced workers.

Each aspect of a product was examined using different determinant attributes. For example, airline brand equity derived from flight schedules was examined individually using: the 'Frequent flights to various destinations', 'Convenient flight schedule' and 'Availability of non-stop flights' attributes. Similarly, the importance of airline employees in providing a service was examined by the 'Physical appearance of employees', 'Close attention by cabin crew', 'Cabin crew's ability to answer questions' and 'Employees are willing to help passengers' attributes.

In each step of the stepwise multiple discriminant analysis an airline product determinant attribute was examined for its individual influence (as indicated by an F-statistic), discriminating power (indicated by Mahalanobis distance) and multicollinearity with other airline product determinant attributes already included in the discriminant functions (indicated by the Tolerance value), while simultaneous estimations examined the combined discriminating power of the attributes that were used as independent variables.

The usefulness of each airline product determinant attribute as an independent variable was examined. There are 14 (out of 24) airline product determinant attributes that were useful predictors at a 0.05 level of significance. The stepwise process starts by including a determinant attribute that has the highest discriminating power amongst four airline brands: British Airways, Virgin Atlantic Airways, Emirates and Singapore Airlines. This is indicated by Mahalanobis distance (D^2) which measures the distance between groups (airlines). 'Seat space' has the largest significant difference (F=19.802), but it lacks discriminating power when compared with other determinant attributes.

In contrast, the significant difference of 'Physical appearance of employees' is less than 'Seat Space' (F=14.414), but it has the biggest discriminating power (D^2=0.05) amongst British Airways, Virgin Atlantic Airways, Emirates and Singapore Airlines brands. Thus, 'Physical appearance of employees' was the

first determinant attribute that entered the discriminant function (see Table 5.13-1 and Appendix Q).

Table 5.13-1 shows the discriminating power (indicated by the Mahalanobis distance) and the statistical significance of each airline product determinant attribute (stated by F statistic) in the first stage of multiple discriminant analysis (using airline brands as dependent variable and airline product determinant attributes as independent variables) at a 0.05 level of significance.

Table 5.13-1 Results from step 1 of stepwise two-group multiple discriminant analysis

Airline product determinant attributes	F statistics	Mahalanobis Distance	Significance
Frequent Flights to destinations	4.715	0.0000	0.003
Convenient flight schedule	6.859	0.0080	0.000
Availability of non-stop flights	2.243	0.0110	0.083
On-time baggage delivery upon arrival	0.228	0.0000	0.877
Advance seat selection	2.126	0.0030	0.096
Free tickets from frequent flyer programme	0.66	0.0010	0.577
Internet check in	7.705	0.0020	0.000
Up-to-date aircraft	18.957	0.0050	0.000
Personal on-board entertainment	13.341	0.0020	0.000
Seat space	19.802	0.0010	0.000
Meal service	3.307	0.0080	0.020
Complimentary newspapers	11.611	0.0380	0.000
Physical appearance of employees	14.414	0.0500	0.000
Close attention by cabin crew	1.509	0.0000	0.212
Cabin crew's ability to answer questions	7.275	0.0060	0.000
Employees who are willing to help passengers	8.848	0.0090	0.000
Courtesy of employees	0.693	0.0010	0.557
Employees who have the knowledge to answer questions when things go wrong	2.873	0.0110	0.036
Sincere interest in solving problems	2.247	0.0110	0.082
Adequacy of information on airlines' websites	1.284	0.0000	0.280
Ticket purchase opportunity via Internet	1.428	0.0020	0.234
Availability of airline website on the internet	3.212	0.0020	0.023
Price	4.279	0.0000	0.005
Value for money	2.506	0.0040	0.059

After all 24 airline product determinant attributes had been examined there were three discriminant functions that discriminated between the four airline brands. Each discriminant function was comprised of six airline product determinant attributes:

- 'Availability of non-stop flights'
- 'Advance seat selections'
- 'Up-to-date aircraft'
- 'Seat space'
- 'Physical appearance of employees'; and
- 'Ticket purchase opportunity via the internet'

There are three discriminant functions representing the three dimensions that discriminate between the four airline brands: British Airways, Emirates, Virgin Atlantic Airways and Singapore Airlines. The first discriminant function is the most powerful (indicated by the lowest Wilks' Lambda value (Λ = 0.680). The first discriminant function is significant in distinguishing the dimension between the four airline brands (at a 0.05 level of significance) χ^2 (18) = 147.490, p = 0.000. The second discriminant function is less powerful at discriminating the dimensions that separate the four airline brands (Λ =0.915), but it is still significant (at a 0.05 level of significance) χ^2 (10) = 33.849, p = 0.000. The third discriminant function is the least powerful at discriminating the dimensions (Λ = 3.331). In contrast, to the first two discriminant functions, the third is not significant at discriminating between the dimensions that distinguish the four airline brands χ^2 (4) = 3.331, p = 0.504 (see Table 5.13-2 and Appendix Q).

- The first discriminant function accounts for 79% of the variance explained by the three discriminant functions, with the remaining variance (21%) due to the second and third discriminant functions.
- The total amount of variance explained by the first discriminant function is 0.507^2, or 25.705%.
- The second discriminant function explained 0.277^2, or 7.673% of the 74% remaining variances (1-0.507^2).

- The third discriminant function was not statistically significant. Thus, the total variance explained by two statistically significant discriminant functions was 31.383% (0.507^2 + (0.277^2 x 0.74).

Table 5.13-2 shows the discriminating power and the statistical significance of each discriminant function that distinguished between the four airline brands.

Table 5.13-2 Overall model fit: Canonical discriminant functions

Discriminant Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation	Wilks' Lambda (Λ)	Chi-square(χ^2)	Degrees of freedom	Significance
1	0.346	79.0	79.0	0.507	0.680	147.90	18	0.000
2	0.083	19.0	98.0	0.277	0.915	33.849	10	0.000
3	0.009	2.0	100.0	0.093	0.991	3.331	4	0.504

5.13.3 Rotation of discrimination functions

There are six airline product determinant attributes that are most different amongst the four airline brands. Each discriminant function was rotated using the Varimax method. The purpose of rotation is to redistribute the variance for better interpretation. The aim is to improve understanding of how airline product determinant attributes differ between the four airline brands.

The correlations of airlines product determinant attributes and discriminant functions after Varimax rotations, show that the discriminant loadings of each airline product determinant attributes were loaded unevenly across the three discriminant functions. Discriminant loading indicates the discrimination power of each determinant attribute.

In Table 5.13-3, the potency index indicates the overall discrimination power of each discriminant function and each airline product determinant attribute. The calculation of the potency index is shown in Appendix V.

Table 5.13-3 Potency index of airline product determinant attributes

Airline general product determinant attributes	Potency index
Seat space	0.267
Up-to-date aircraft	0.076
Personal on-board	0.076
Employees who are willing to help passengers	0.028
Internet check-in	0.027
Cabin crew's ability to answer questions	0.025
Physical appearance of employees	0.023
Meal service	0.023
Complimentary newspapers	0.016
Close attention by cabin crew	0.013
Employees who have the knowledge to answer questions when things go wrong	0.011
Courtesy of employees	0.007
Advance seat selection	0.005
Value for money	0.005
Sincere interest in solving problems	0.004
Availability of non-stop flights	0.004
On-time baggage delivery upon arrival	0.004
Ticket purchase opportunity via the Internet	0.004
Price	0.003
Adequacy of information on airline's website	0.002
Availability of airline website on the internet	0.002
Free tickets from frequent flyer programme	0.002
Convenient flight schedule	0.002
Frequent flights to destinations	0.001

5.13.4 Dimensions that distinguished between airline brands

There are three discriminant functions that discriminate between the four airline brands: British Airways, Virgin Atlantic Airways, Emirates and Singapore Airlines.

Table 5.13-4 shows the unstandardised canonical discriminant function coefficients. The means for each airline brand (British Airways, Virgin Atlantic

Airways, Emirates and Singapore Airlines) on each of the six airline product determinant attributes are substituted in each discriminant function in order to obtain a typical profile (also known as 'group centroids') of each airline brand along the three discriminant functions.

Table 5.13-4 Canonical discriminant function coefficients (unstandardised)

Airline product determinant attributes	**Discriminant functions**		
	1	2	3
Availability of non-stop flights	-0.034	-0.031	0.018
Advance seat selection	-0.017	-0.068	0.050
Up-to-date aircraft	-0.041	0.184	0.017
Seat space	0.188	-0.046	0.032
Physical appearance of employees	-0.030	-0.012	-0.163
Ticket purchase opportunity via Internet	-0.014	0.021	0.070
(Constant)	-0.762	-0.508	0.174

The purpose of the discriminant function is to classify each respondent into a group, where each group represents a dimension that distinguishes between four airline brands. Each respondent's airline product determinant attribute scores (on those six airline product determinant attributes in the discriminant function) are entered into each discriminant function. Each respondent will be classified into the group with the highest score. This will identify the dimensions on which each airline passenger perceives airline brands to be most different.

Table 5.13-5 shows that the first discriminant function distinguished the Emirates and Singapore Airlines brands from the British Airways and Virgin Atlantic Airways brands. The second discriminant function distinguished the Virgin Atlantic Airways, Emirates and Singapore Airlines brands from the British Airways brand. The third discriminant function distinguished the Emirates and

Singapore Airlines brands from the British Airways and Virgin Atlantic Airways brands.

When the means for each airline brand on those six airline product determinant attributes are substituted in each discriminant function, the typical profile for each airline brand along the three dimensions that distinguished between them are demonstrated in Table 5.13-5.

Table 5.13-5 Discriminant functions at group centroids

Airline brands	Discriminant functions		
	1	2	3
British Airways	-.349	-.403	.247
Virgin Atlantic Airways	-.069	.455	.130
Emirates	.545	.384	-.235
Singapore Airlines	.579	.078	-.876

Table 5.13-6 shows the discriminant loadings of each airline product determinant attribute of the first discriminant function. There is only one airline product determinant attribute with discriminant loadings greater than 0.5 (this is emphasised in bold). Seat comfort is the most influential airline product determinant attribute. This dimension distinguishes Singapore Airlines and Emirates Airline brands from British Airways and Virgin Atlantic Airways brands. In this function, seat comfort is the only determinant attribute that is both significant and influential. Both Singapore Airlines and Emirates invest significantly in providing suitable seating product in each on-board cabin of service. For example, Singapore Airlines emphasises luxurious suites, biggest business class seats and new generation economy class seats on-board Airbus A380 aircraft. Similarly, Emirates also emphasise luxurious private suites and innovative business and economy class seats.

Table 5.13-6 Airline general product determinants' discriminant loadings in Discriminant function 1

Discriminant function 1	Discriminant loadings
Seat space	**0.874**
Personal on-board entertainment	0.450
Employees who are willing to help passengers	0.277
Cabin crew's ability to answer questions	0.258
Meal service	0.248
Up-to-date aircraft	0.240
Physical appearance of employees	0.234
Internet check-in	0.233
Complimentary newspapers	0.186
Close attention by cabin crew	0.179
Employees who have the knowledge to answer questions when things go wrong	0.173
Courtesy of employees	0.141
Value for money	0.108
Sincere interest in solving problems	0.101
On-time baggage delivery upon arrival	0.096
Price	0.088
Ticket purchase opportunity via Internet	0.069
Advance seat selection	0.059
Frequent flights to destinations	0.041
Convenient flight schedule	0.036
Adequacy of information on airline's websites	0.030
Free tickets from frequent flyer programme	0.026
Availability of airline website on the internet	-0.058
Availability of non-stop flights	-0.097

In the second discriminant function that distinguished between the four airline brands, Table 5.13-7 shows the discriminant loadings of each airline product determinant attribute. In this function, there is only one airline product determinant attribute with a discriminant loading greater than 0.5: modern fleet of aircraft. The second dimension discriminates the Virgin Atlantic Airways, Singapore Airlines and Emirates brand from British Airways brand. It is the Virgin Atlantic Airways brand that is perceived as having the most current fleet of aircraft.

In summary, the first discriminant function shows that British Airways is poorest amongst the airlines in on-board seating. The second discrimination also shows that British Airways' fleet of aircraft is also poorest amongst the other airlines. In combination, both discriminant functions show that it is British Airways' lack of suitable tangible products - on-board seating and modern fleet of aircraft - that separates them from other airline brands (Singapore Airlines, Emirates, Virgin Atlantic).

Both Singapore Airlines and Emirates distinguish their brands from British Airways because they can satisfy on these dimensions. In comparison, Virgin Atlantic Airways' on-board seating is perceived to be similar to British Airways'. However, it is their most modern fleet of aircraft amongst the four airlines that helps to distinguish the Virgin Atlantic Airways brand.

In combination, the two dimensions that discriminate between the four airline brands show that airline brands are perceived to be most different only on tangible features (e.g. seat space and up to date aircraft). In a business of great similarity amongst tangible products, this suggests that sources of airline brand differentiations are the intangible factors such as the services that the airline provides.

Table 5.13-7 shows the discriminant loadings of each determinant attribute of the second discriminant function. There is only one airline product determinant attribute with discriminant loadings greater than 0.5 (these are emphasised in bold).

Table 5.13-7 Airline general product determinants' discriminant loadings in Discriminant function 2

Discriminant function 2	Discriminant loadings
Up to date aircraft	**0.823**
Internet check-in	0.309
Personal on-board entertainment	0.265
Complimentary newspapers	0.188
Seat space	0.165
Meal service	0.143
Close attention by cabin crew	0.124
Employees who are willing to help passengers	0.111
Cabin crew's ability to answer questions	0.111
Adequacy of information on airline's website	0.099
Free tickets from frequent flyer programme	0.097
Physical appearance of employees	0.097
Value for money	0.090
Ticket purchase opportunity via the Internet	0.086
Sincere interest in solving problems	0.063
Courtesy of employees	0.050
Availability of airline website on the internet	0.041
Employees who have the knowledge to answer questions when things go wrong	0.032
On-time baggage delivery upon arrival	0.025
Price	0.017
Availability of non-stop flights	-0.061
Frequent flights to destinations	-0.081
Convenient flight schedule	-0.088
Advance seat selection	-0.188

In Figure 5.13-1, the territorial map illustrates that the first dimension (on-board seating) distinguishes the British Airways brand from the Singapore Airlines, Virgin Atlantic Airways and Emirates brands. It shows that the British Airways brand is perceived as being poorest in providing on-board seating. It is the Virgin Atlantic Airways brand that is most similar to the British Airways brand on this dimension.

The second dimension (modern fleet of aircraft) distinguished the Virgin Atlantic Airways brand from the Singapore Airlines, Emirates and British Airways brands. On this dimension, the Virgin Atlantic Airways brand is most similar to the Emirates Airline brand.

Combining the two discriminant functions shows that the British Airways brand is perceived as poorest in providing suitable tangible products.

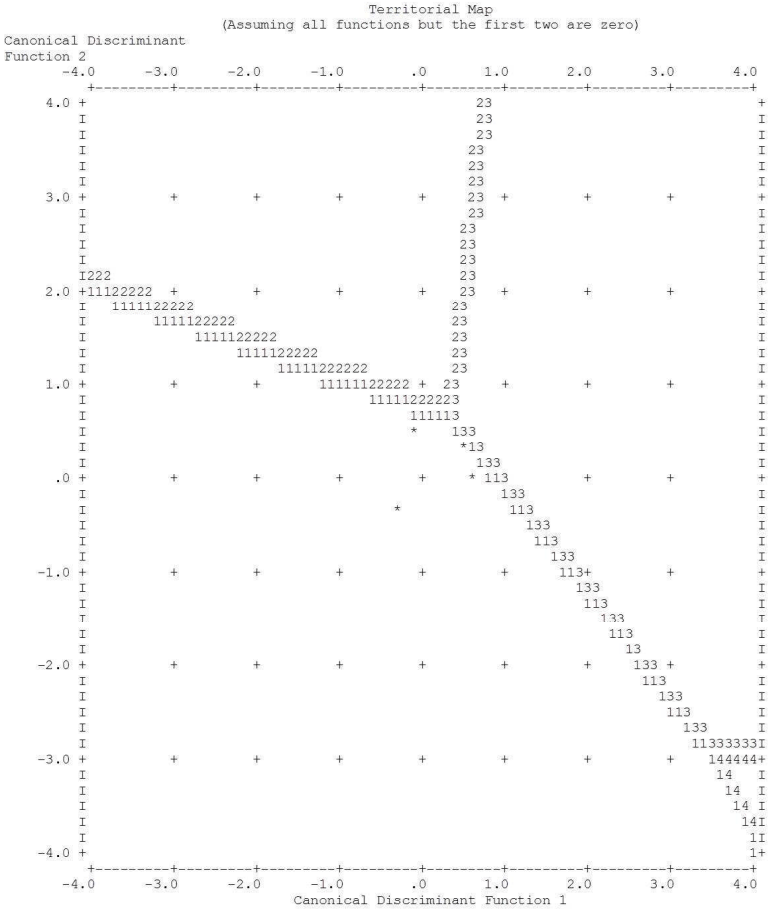


Figure 5.13-1 Territorial map illustrating the dimensions that distinguish between four airline brands

Table 5.13-8 Territorial map symbols

Symbols	Airline brands
1	British Airways
2	Virgin Atlantic Airways
3	Emirates
4	Singapore Airlines

5.14 Validation assessing group membership for prediction accuracy

The (k-1) fold method was used in order to assess the validity and classification accuracy of the discriminant functions. In this validation method, the sample (n=550) is divided into two - analysis and cross-validation samples. In each step of the validation process, the cross-validation sample comprises a single observation, while the remaining sample is an analysis sample. The (k-1) fold validation process continues until each case has been used in the cross-validation sample once.

In section 5.13, three discriminant functions that distinguished between four airline brands were identified. Each respondent's airline product determinant attribute scores (on those six airline product determinant attributes in the discriminant function) were entered into each discriminant function. Each respondent was assigned to the group with the highest score.

Table 5.14-1 shows the hit ratios which indicates the percentage at which the discriminant function predicts group membership accurately. The diagonal element (emphasised in bold) shows the number of respondent that were correctly classified into each group. The hit ratio of the analysis sample is 55.2% (159+17+34+4 ÷ 181+83+83+41). In contrast, the hit ratio of the cross-validation sample is 52.8% (154+15+32+14 ÷ 181+83+83+41)

Table 5.14-1 Classification results for four-group discriminant analysis

	Predicted group membership				
Analysis	British Airways	Virgin Atlantic Airways	Emirates	Singapore Airlines	Total
British Airways	**159**	5	16	1	181
Virgin Atlantic	50	**17**	14	2	181
Emirates	37	4	**34**	8	83
Singapore Airlines	17	2	18	**4**	41
Ungrouped cases	108	10	34	0	
Cross-validation					
British Airways	**154**	8	18	1	181
Virgin Atlantic Airways	50	**15**	16	2	83
Emirates	38	5	**32**	8	83
Singapore Airlines	17	2	18	**4**	41

In order to establish whether the hit ratios suggest that group membership prediction is accurate, hit ratios of analysis and cross-validation samples were compared against Press's Q statistic, Proportional Chance Criterion (PCC) and Maximum Chance Criterion (MCC) (Hair, 2010):

5.14.1 Press's Q Statistic

Press's Q statistic assesses whether the prediction accuracy of the discriminant functions is achieved only by chance.

Where

n = total sample size

c = number of observations correctly classified

g = number of groups

Analysis sample

$$Q = \frac{[550 - (214 \times 4)]2}{550(4 - 1)}$$

Q = 56.749

Cross-validation sample

$$Q = \frac{[550 - (205 \times 4)]2}{550(4 - 1)}$$

Q = 44.182

Press's Q statistics of analysis and cross-validation samples were compared against chi-square value with one degree of freedom at both 0.01 and 0.05 levels of significance. The critical values, at each level of significance were 3.84 and 6.63 at each level of significance (see Appendix Y). Press's Q statistics of analysis and cross-validation samples were both significantly higher than the critical values. It shows that the prediction accuracy of the discriminant functions is better than by chance.

5.14.2 Proportional Chance Criterion (PCC)

PCC assesses whether accurate group membership is influenced by the size of each group.

PCC = $(0.466^2 + 0.214^2 + 0.214^2 + 0.106^2) \times 1.25$

PCC = 39.998%

The hit ratios of both analysis and cross-validation samples (55.2% and 52.8%) exceeded the PCC threshold value of 38.998. It demonstrates that the classification accuracy of the discriminant functions is still better than by chance, even after having considered the size of each group.

5.14.3 Maximum Chance Criterion (MCC)

MCC assesses whether the prediction accuracy of group membership is influenced by the largest group.

MCC = 0.466 (1.25)

MCC = 0.583 (or 58.3%)

The hit ratios of the analysis and cross-validation samples do not satisfy the MCC threshold value. In section 5.13, British Airways was identified most frequently as the airline 'most like to fly with'. This shows that prediction accuracy was influenced by the largest group (British Airways brand). Because the British Airways brand was most frequently mentioned as 'most like to fly'. This was deemed acceptable, because in section 5.7.1, the British Airways brand was illustrated as having established the highest level of brand awareness in this research. This illustrates the dominance of the British Airways brand in the United Kingdom.

The assessments of the prediction accuracy of the discriminant functions show that the classification is better than by chance (as demonstrated by Press's Q Statistic) and also not biased by any airline brands: British Airways, Virgin Atlantic Airways, Emirates and Singapore Airlines (as demonstrated by Proportional Chance Criterion). The conclusion is the discriminant functions have the external validity to identify the dimensions of airline product determinant attributes that distinguish amongst the four airline brands.

5.15 Identifying which airline product determinant attributes discriminate between clusters of airline brand perceptions

To assess how well current airline products and services satisfy the needs of each cluster of airline brand perceptions, a multiple discriminant analysis was conducted. The aim of conducting the second multiple discriminant analysis was to identify the dimensions of airline product determinant attributes that are most different amongst the four clusters of airline brand perceptions. In the second multiple discriminant analysis, four clusters of airline brand perceptions: 'Hard to please customers', 'Difficult to talk to customers', 'Asking for consistency customers' and 'Loyal customers' were used as dependent variable, while, the airline product determinant attributes were used as independent variables.

Both multiple discriminant analyses followed the same analysis procedure by firstly examining the usefulness of each airline product determinant attribute as predictors. All 24 airline product determinant attributes are useful predictors at a 0.05 level of significance. The stepwise process begins by including an airline product determinant attribute that has the highest discriminating power amongst the four airline brand perception clusters. This is indicated by Mahalanobis distance (D^2) which measures the distance between groups (four clusters of airline brand perceptions). 'Price' is the first product determinant attribute to be included in the function. 'Price' not only has the largest significant difference (F=22.131), but also the biggest discriminating power amongst the four clusters of airline brand perceptions (d=0.030) (see Appendix R and Table 5.15-1).

Table 5.15-1 shows the discriminating power (indicated by the Mahalanobis distance) and the statistical significance of each airline product determinant attribute (stated by F statistic) in the first stage of multiple discriminant analysis (using clusters of airline brand perceptions as dependent variable and airline product determinant attributes as independent variables) at a 0.05 level of significance.

Table 5.15-1 Result from step 1 of stepwise four-group multiple discriminant analysis

	F statistic	Mahalonobis distance	Significance
Frequent flights to destinations	13.887	0.0010	0.000
Convenient flight schedule	12.525	0.0000	0.000
Availability of non-stop flights	5.608	0.0030	0.001
On-time baggage delivery upon arrival	5.099	0.0010	0.002
Advance seat selection	12.129	0.0010	0.000
Free tickets from frequent flyer programme	12.885	0.0030	0.000
Internet check in	7.453	0.0030	0.000
Up-to-date aircraft	14.079	0.0020	0.000
Personal on-board entertainment	8.922	0.0170	0.000
Seat space	11.74	0.0000	0.000
Meal service	6.472	0.0090	0.000
Complimentary newspapers	4.649	0.0000	0.003
Physical appearance of employees	6.61	0.0050	0.000
Close attention by cabin crew	11.508	0.0080	0.000
Cabin crew's ability to answer questions	7.033	0.0000	0.000
Employees who are willing to help passengers	11.499	0.0050	0.000
Courtesy of employees	12.527	0.0230	0.000
Employees who have the knowledge to answer questions when things goes wrong	11.523	0.0260	0.000
Sincere interest in solving problems	14.646	0.0000	0.000
Adequacy of information on airlines' websites	10.642	0.0020	0.000
Ticket purchase opportunity via Internet	10.549	0.0000	0.000
Availability of airline website on the internet	15.062	0.0010	0.000
Price	22.131	0.0300	0.000
Value for money	21.324	0.0040	0.000

After all 24 airline product determinant attributes had been examined, there were three discriminant functions. Each discriminant function is comprised of seven airline product determinant attributes that discriminate amongst the four clusters of airline brand perceptions.

- convenient flight schedule
- up-to-date aircraft
- personal on-board entertainment
- seat space
- sincere interests in solving problems
- price; and
- value for money

The correlations of airlines product determinant attributes and discriminant functions after Varimax rotations, show that the discriminant loadings of each airline product determinant attributes were loaded unevenly across the three functions. Discriminant loading indicates the discrimination power of each determinant attribute.

There are three discriminant functions that represent the three dimensions that discriminate between the four clusters of airline brand perceptions ('Asking for consistency customers, 'Hard to please customers', 'Difficult to talk to customers', and 'Loyal customers'). This first discriminant function is most powerful at discriminating between the four clusters (indicated by the lowest Wilks' Lamda value, (Λ = 0.711). The first discriminant function is significant at distinguishing the dimension between the four clusters of airline brand perceptions (at a 0.05 level of significance) χ^2 (21) = 185.435, p = 0.000. The second discriminant function is less powerful at discriminating the dimensions that distinguish amongst the four clusters of airline brand perceptions (Λ =0.863), p=0.000, but it is still significant (at a 0.05 level of significance) χ^2 (12) = 80.094, p = 0.000. The third discriminant function is the least powerful at discriminating the dimensions (Λ = 0.933). It is significant at discriminating between the dimensions that distinguish between the four cluster of airline

brand perceptions χ^2 (5) = 37.673, p = 0.000. (see Table 5.15-2 and Appendix R)

- The first discriminant function accounts for 58.3% of the variance explained by the three discriminant functions, with the remaining variance (41.7%) due to the second and third discriminant functions. The total amount of variance explained by the first discriminant function is 0.420^2, or 17.64%.
- The second discriminant function explained 0.274^2 or 7.5076% of the 82.36% of remaining variances (1-0.420^2).
- The third discriminant function explained 0.259^2 or (6.7081%) of the 75.651% of the remaining variances (1-0.420^2-0.259^2).
- The total variance explained by three discriminant functions is 28.898% (0.420^2 + (0.274^2 x 0.8236) + (0.259^2 x 0.756) (see Table 5.15-2).

Table 5.15-2 shows the overall fit of each canonical discriminant function.

Table 5.15-2 Overall model fit canonical discriminant functions

Function		Percent of variance						
	Eigen value	Function %	Cumulative%	Canonical correlation	Wilks' Lambda (Λ)	Chi-square (χ^2)	Degrees of freedom (df)	Significance
1	0.214	58.3	58.3	0.420	0.711	185.435	21	0.000
2	0.081	22.1	80.4	0.274	0.863	80.094	12	0.000
3	0.072	19.6	100.0	0.259	0.933	37.673	5	0.000

Each discriminant function was rotated using the Varimax method. The purpose of rotation was to redistribute variance to achieve better interpretations. This will improve the understanding of how airline product determinant attributes separate the four clusters of airline brand perceptions.

Table 5.15-3 a potency index, indicates the overall discrimination power of each airline product determinant attribute. It shows that value for money is the most influential determinant attribute that discriminates amongst the four

clusters of airline brand perceptions. The calculation of the potency index is shown in Appendix V.1.

Table 5.15-3 Potency index of airline general product determinant attributes

Airline general product determinant attributes	Potency index
Value for money	0.137
Sincere interest in solving problems	0.135
Up-to-date aircraft	0.121
Personal on-board entertainment	0.109
Seat space	0.103
Adequacy of information on airlines' websites	0.088
Internet check-in	0.083
Price	0.080
Ticket purchase opportunity via Internet	0.077
Free tickets from frequent flyer programme	0.062
Close attention by cabin crew	0.061
Employees who have the knowledge to answer questions when things go wrong	0.058
Courtesy of employees	0.057
Cabin crew's ability to answer questions	0.055
On-time baggage delivery upon arrival	0.055
Physical appearance of employees	0.055
Meal service	0.053
Employees who are willing to help passengers	0.04
Convenient flight schedule	0.049
Availability of airline website on the internet	0.041
Availability of non-stop flights	0.039
Complimentary newspapers	0.038
Frequent flights to destinations	0.037
Advance seat selection	0.034

There are three discriminant functions that discriminate between the four clusters of airline brand perceptions.

Table 5.15-4 shows the unstandardised canonical discriminant function coefficients. The means for each cluster of airline brand perceptions on each of

the seven airline product determinant attributes are substituted in each discriminant function in order to obtain a typical profile (also known as 'group centroids) of each cluster of airline brand perceptions along those three dimensions.

Table 5.15-4 Unstandardised canonical discriminant function coefficients

	Discriminant functions		
	1	2	3
Convenient flight schedule	0.006	0.035	0.073
Up to-date aircraft	0.053	0.070	-0.018
Personal on-board entertainment	0.029	-0.107	-0.012
Seat space	-0.007	0.034	-0.121
Sincere interest in solving problems	0.063	-0.084	0.033
Price	0.002	0.126	0.007
Value for money	0.058	-0.008	0.046
(Constant)	-1.287	-0.462	0.370

There are three discriminant functions that distinguished between the four clusters of airline brand perceptions. The purpose of the discriminant function is to classify each respondent into a group. Each respondent's airline product determinant attribute scores (on those seven airline product determinant attributes in the discriminant function) were entered into each discriminant function. Each respondent was classified into the group with the highest score.

The means for the clusters of airline brand perceptions on those seven airline product determinant attributes were substituted in each discriminant function to obtain the typical profile for each cluster of airline brand perceptions along the three dimensions that distinguished between them.

Table 5.15-5 shows that the first discriminant function distinguished the 'Loyal customers' cluster from 'Difficult to talk to customers', 'Hard to please customers' and 'Asking for consistency customers' clusters. The second discriminant function distinguished the 'Difficult to talk to customers' and 'Loyal customers' clusters from the 'Hard to please to customers' and 'Asking for consistency customers' clusters. The third discriminant function distinguished the 'Hard to please customers' and 'Loyal customers' clusters from the 'Difficult to talk to customers' and 'Asking for consistency customers' clusters.

Table 5.15-5 Function at group centroids

Clusters of airline brand perceptions	**Discriminant functions**		
	1	2	3
1:Difficult to talk to customers	-0.202	0.331	-0.184
2:Hard to please customers	-0.588	-0.451	0.322
3: Loyal customers	0.450	0.219	0.315
4: Asking for consistency customers	-0.057	-0.481	-0.450

Table 5.15-6 shows the discriminant loadings of each airline product determinant attribute of the first discriminant function. There are 13 airline product determinant attributes with discriminant loadings greater than 0.5 (these are emphasised in bold).

Table 5.15-6 Determinants' discriminant loadings in discriminant function 1

Discriminant function 1	Discriminant loadings
Value for money	**0.787**
Sincere interest in solving problems	**0.771**
Up-to-date aircraft	**0.706**
Personal on-board entertainment	**0.659**
Adequacy of information on airlines' websites	**0.628**
Internet check-in	**0.608**
Ticket purchase opportunity via the Internet	**0.590**
Seat space	**0.569**
Free tickets from frequent flyer programme	**0.531**
Close attention by cabin crew	**0.530**
Employees who have the knowledge to answer questions when things go wrong	**0.515**
Courtesy of employees	**0.514**
On-time baggage delivery upon arrival	**0.506**
Cabin crew's ability to answer questions	0.495
Meal service	0.493
Employees who are willing to help passengers	0.478
Physical appearance of employees	0.471
Price	0.469
Availability of non-stop flights	0.403
Complimentary newspapers	0.401
Advance seat selection	0.395
Convenient flight schedule:	0.388
Frequent flights to destinations	0.367

The first dimension highlights that 'value for money' is the most influential determinant attribute for the 'Loyal customers' cluster. It is value for money from service provided by airline staff that influences airline choice more than airlines' tangible products. This illustrates the importance of each service encounter. If service is delivered poorly, this encounter may ruin the air travel experience, which could erode potential brand equity gained from the use of tangible airline products. It is noteworthy that 'Asking for consistency customers' are most similar to 'Loyal customers' in this dimension.

In serving the needs of the 'Loyal customers' cluster, airline brand value propositions can be categorised into three priorities: value for money from customer service provided by airline staff; suitable tangible airline products; and travel support tools which include easy access to airline products and services information from airline websites.

The first priority is to provide good customer service from airline staff. This also includes help during mishaps such as flight delays, or assistance for disabled passengers. This indicates the need for airlines to provide a comprehensive training programme for airline staff. This ensures that airline employees deliver high standards of customer service consistently.

The second priority in serving the needs of the 'Loyal customers' cluster is to ensure that brand value propositions provide suitable tangible products such as personal on-board entertainment and spacious seating on the airplane.

The third priority in serving the needs of the 'Loyal customers' cluster is to ensure that brand value propositions provide easy access to airlines' products and services information. This includes travel support tools such as an internet check-in facility, informative websites containing useful airline information, and ticket buying opportunities. These travel support tools showcase how the internet helps members of this cluster to personalise their air travel experience. For example, internet check-in enables passengers to choose their own seats before arriving at airports, and airline products and services information on websites helps travellers to gain the information that they need easily. 'Loyal customers' cluster prioritises not only value for money from the service that airline staff provides, but also the autonomy gained from using airlines' self-service facilities such as buying tickets online and an internet check-in facility. All this suggests that members of this cluster seek a high degree of personalisation, both in the service that airlines provide, but also by using the internet to personalise their air travel experience.

In contrast, less influential airline product determinant attributes for the 'Loyal customers' cluster are meal service, advance seat selections and

complimentary newspapers. These are the benefits that full-service carrier brands often emphasise.

This second dimension highlights that price is the most influential determinant attribute for airline choice for the 'Difficult to talk to customers' cluster. In this discriminant function, price is the only significant and influential determinant attribute that influences airline choice for this cluster (as indicated by a discriminant loading greater than 0.5). It shows that for the 'Difficult to talk to customers' cluster, airline tangible products such as a modern fleet of aircraft, on-board seating and staff service have little influence on their choice of airline.

In serving the needs of the 'Difficult to talk to customers' cluster, brand value propositions need to emphasise low price. This is because price is the most influential determinant attribute for this cluster. This demonstrates how airline brands such as: Ryanair and Air Asia can establish a large base of repeat customers. Ryanair was rebranded in 1991 from a full-service carrier brand to a low-cost carrier brand. This brand value proposition is different from those of competitor brands like British Airways and Aer Lingus. Similarly, the Air Asia brand also focuses on providing low fares and limited products and services. In both scenarios, the benefits that each brand delivers are significantly different from competitor brands that focus on providing a wide range of products and services (O'Connell and Williams, 2005).

Table 5.15-7 shows the discriminating loadings of each airline product determinant attributes of the second discriminant function. In this function, price is the only attribute that has a discriminant loading greater than 0.5 (this is emphasised in bold).

Table 5.15-7 Discriminant loadings in discriminant function 2

Discriminant function 2	Discriminant loadings
Price	**0.630**
Availability of airline website on the internet	0.282
Up-to-date aircraft	0.203
Value for money	0.150
Convenient flight schedule	0.129
Availability of non-stop flights	0.114
Seat space	0.106
Frequent flights to destinations	0.094
Physical appearance of employees	0.080
Internet check-in	0.077
Employees who are willing to help passengers	0.058
Advance seat selection	0.056
Free tickets from frequent flyer programme	0.049
Complimentary newspapers	0.044
Cabin crew's ability to answer questions	0.043
Close attention by cabin crew	0.023
Employees who have the knowledge to answer questions when things go wrong	0.013
Ticket purchase opportunity via the Internet	0.003
On-time baggage delivery upon arrival	0.001
Courtesy of employees	-0.011
Meal service	-0.031
Adequacy of information on airlines' websites	-.052
Sincere interest in solving problems	-0.226
Personal on-board entertainment	-0.227

This third dimension highlights that time-sensitivity is the most influential airline determinant attribute for the 'Hard to please customers' cluster. It indicates that members of this cluster are time-sensitive travellers. This dimension accounts for the lowest amount of differences that distinguished the four clusters of airline brand perceptions. This suggests that brand messages that emphasise the time-sensitivity requirement of airline passengers would have little influence in choice of airline brand.

Table 5.15-8 shows the discriminating loadings of each airline product determinant attributes of the third discriminant function. In this function, all discriminant loadings of airline product determinant attributes were less than 0.5 indicating that it is less influential but still statistically significant (at a 0.05 level of significance). The discriminant loading of 'Convenient flight schedule' (0.466) indicates that time-sensitivity is the least influential airline product determinant attribute for airline choice.

This third discriminant function illustrates that 'Convenient flight schedule' had little influence on airline choice. This helps to explain further how low-cost carrier brands are able to establish a large base of repeat customers. Low fares are seen as more important than convenient flight times. In contrast, 'Convenient flight schedule' is one of the key messages that full-service carrier airline brands emphasise regularly. For example, Qantas' 'CityFlyer' brand targets business travellers requiring high flight frequency between Australia gateway cities. It shows that full-service carrier brands can emphasise benefits that do not influence airline choice.

Each of the three dimensions shows the distinctive features of the: 'Loyal customers', 'Hard to please customers' and 'Difficult to talk to customers' clusters. There is no distinctive feature of the 'Asking for consistency' cluster.

Table 5.15-8 Discriminant loadings in discriminant function 3

Discriminant function 3	Discriminant loadings
Convenient flight schedule	0.466
Frequent flights to destinations	0.323
Availability of airline website on the internet	0.273
Sincere interest in solving problems	0.229
Availability of non-stop flights	0.225
Adequacy of information on airlines' websites	0.210
Value for money	0.200
Ticket purchase opportunity via Internet	0.196
Free tickets from frequent flyer programme	0.131
Advance seat selection	0.093
Price	0.074
On-time baggage delivery upon arrival	0.026
Courtesy of employees	-0.033
Close attention by cabin crew	-0.09
Employees who have the knowledge to answer questions when things goes wrong	-0.104
Meal service	-0.118
Cabin crew's ability to answer questions	-0.2
Internet check in	-0.203
Employees who are willing to help passengers	-0.228
Complimentary newspapers	-0.229
Physical appearance of employees	-0.301

The territorial map (see Figure 5.15-1) shows that the first dimension (value for money from airlines' services and products) distinguished the 'Loyal customers' cluster from the 'Asking for consistency customers', 'Difficult to talk to customers' and Hard to please' customers' clusters. The second discriminant function, which highlights price sensitivity, distinguished the 'Difficult to talk to customers' and 'Loyal customers' clusters from the 'Asking for consistency customers' and 'Hard to please' customers' clusters.

The territorial map only shows two dimensions that distinguish between the clusters of airline passengers with different airline brand perceptions. However,

the third discriminant function, which highlights time sensitivity, distinguishes the 'Hard to please customers' and 'Loyal customers' clusters from the 'Asking for consistency customers' and 'Difficult to talk to customers' clusters. The combination of these three discriminant functions, shows that 'Loyal customers' and 'Asking for consistency customers' clusters are characterised by their value for money consciousness and time sensitivity. By comparison, the 'Difficult to talk to customers' cluster is most price-sensitive, while the 'Hard to please customers' cluster is most time-sensitive.

The third discriminant function indicates that the 'Hard to please customers' cluster is the most time-sensitive amongst the four clusters. The third discriminant function is statistically significant at a 0.05 level of significance. However, the discriminant loading suggests that time sensitivity is least influential in airline choice.

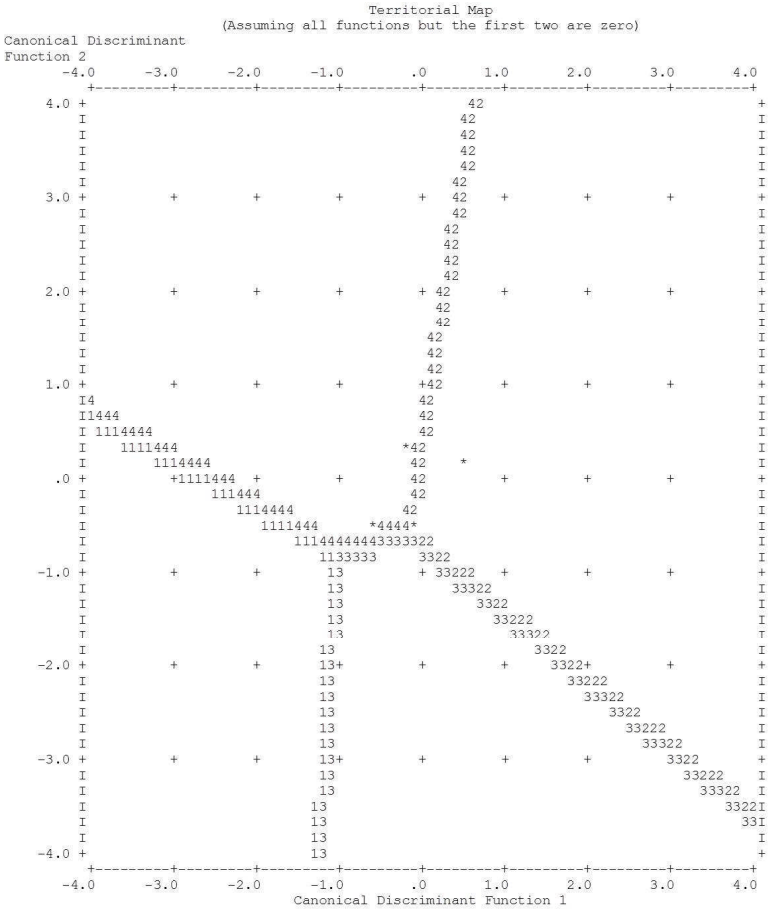


Figure 5.15-1 Territorial map illustrating the dimensions that distinguished between the four clusters of airline brand perceptions

Table 5.15-9 Territorial map symbols

Symbols	Cluster of airline brand perceptions
1	'Hard to please customers'
2	'Loyal Customers'
3	'Asking for consistency customers'
4	'Difficult to talk to customers'

5.16 Validation assessing group membership for prediction accuracy

In order to assess the validity of the discriminant functions, the sample (n=550) was divided into analysis and cross-validation samples. The hit ratios were compared against three test statistics: Press's Q statistic, Proportional Chance Criterion (PCC) and Maximum Chance Criterion (MCC).

The hit ratios indicate the percentage at which the discriminant function predicts group membership accurately. The hit ratio of the analysis sample is 47.818% (29+118+57+59 ÷ 78+189+123+160). In contrast, the hit ratio of the cross-validation sample is 45.636% (28+114+53+56 ÷ 78+189+123+160) (see Table 5.16-1)

Table 5.16-1 shows the classification accuracy of the discriminant functions. The diagonal element (emphasised in bold) shows the number of cases that were correctly classified into each cluster of airline brand perceptions.

Table 5.16-1 Classification results for four-group discriminant analysis

	Predicted group membership				
Analysis	'Hard to please customers'	'Loyal customers'	'Asking for consistency customers'	'Difficult to talk to customers'	Total
'Hard to please Customers'	**29**	17	14	18	78
'Loyal Customers'	25	**118**	14	32	189
'Asking for consistency customers'	19	26	**57**	21	123
'Difficult to talk to customers'	24	50	27	**59**	160
Cross-validation					
'Hard to please customers'	**28**	18	14	18	78
'Loyal Customers'	25	**114**	14	36	189
'Asking for consistency customers'	19	28	**53**	23	123
'Difficult to talk to customers'	25	51	28	**56**	160

5.16.1 Press's Q statistic

$$\text{Press's Q} = \frac{[\text{n} - (\text{c} \times \text{g})]2}{\text{n}(\text{g} - 1)}$$

Where

n = total sample size

c = number of observations correctly classified

g = number of groups

Analysis sample

$$\text{Press's Q} = \frac{[550 - (263 \times 4)]2}{550(4 - 1)}$$

Press's Q = 152.730

Cross-validation sample

$$\text{Press's Q} = \frac{[550 - (251 \times 4)]2}{550(4 - 1)}$$

Press's Q= 124.919

Press's Q statistics of analysis and cross-validation samples were compared against chi-square value with one degree of freedom at both 0.01 and 0.05 levels of significance. The critical values were 3.84, and 6.63 at each level of significance (see Appendix Y).

Press's Q statistics of analysis and cross-validation samples were both significantly higher than the critical values, showing that the prediction accuracy of the discriminant functions is better than by chance.

5.16.2 Proportional Chance Criterion (PCC)

PCC assesses whether accurate group membership is influenced by the size of each group.

PCC = $(0.142^2 + 0.344^2 + 0.224^2 + 0.291^2) \times 1.25$

PCC = 0.342 or (34.2%)

The hit ratios of both the analysis and cross-validation samples exceeded the PCC threshold value of 34.2%. This demonstrates that the classification accuracy of the discriminant functions is still better than by chance even after having considered the size of each group.

5.16.3 Maximum Chance Criterion (MCC)

MCC assesses whether the prediction accuracy of group membership is influenced by the largest group.

MCC = 0.344 x (1.25) = 0.43 or 43%

The hit ratios of both the analysis and cross-validation samples exceeded the threshold values of MCC and PCC. This demonstrates that the prediction accuracy of the discriminant functions is not biased by the largest group.

The assessments of the prediction accuracy of the discriminant functions shows that the classification is better than by chance (as demonstrated by Press's Q Statistic) and also not biased either by the size of each cluster or by the largest cluster (as demonstrated by PCC and MCC). The conclusion is that the discriminant functions have the external validity to identify the dimensions of airline product attributes that distinguish amongst the four clusters of airline brand perceptions.

5.17 Validation of the principal components of airline brand equity and clusters of airline brand perceptions

In this section, the principal components that represent the structure of airline brand equity (as discussed in section 5.8) and four clusters of airline brand perceptions (as discussed in section 5.9) are further validated by conducting a multiple discriminant analysis. In this validation process, the four clusters of airline brand perceptions are used as dependent variables. Three airline brand perception measures (from each factor) with the highest communality score were used as independent variables (see Table 5.17-1).

Table 5.17-1 shows the dependent and independent variables that were used when validating the principal components of airline brand equity and four clusters of airline brand perceptions.

Table 5.17-1 Variables used in the multiple discriminant analysis during validation process

Dependent variable: Clusters of airline brand perceptions		
Independent variables		
Factor 1	Factor 2	Factor 3
'I hold (airline) in high regard'	'I am strongly committed to fly with (airline)'	'I see a lot of advertisements about (airline)'
'(airline) care about its customers'	'(airline) consistently satisfies me'	
'When I think of flying with (airline) I have positive thoughts'	'I talk about (airline) with my friends'	

The analysis follows the same analytic procedure as previous multiple discriminant analyses. There are three discriminant functions that distinguish between the four clusters of airline brand perceptions.

After all seven airline product determinant attributes have been examined, there are three discriminant functions. Each discriminant function comprises seven airline product determinant attributes that discriminate amongst the four clusters of airline brand perceptions:

- ‘I hold (airline) in high regard’
- ‘When I think of flying with (airline)’, I have positive thoughts’
- ‘(airline) cares about its customers’
- ‘I am strongly committed to fly with’
- ‘(airline) consistently satisfies me’
- ‘I talk about (airline) with my friends’; and
- ‘I see a lot of advertisements about (airline)’

In the validation process, there are three discriminant functions, where each dimension discriminates between the clusters of airline brand perceptions. The first discriminant function is the most powerful (indicated by the lowest Wilks’ Lambda value (Λ = 0.175). The first discriminant function is significant at distinguishing the dimension between the four clusters of airline brand perceptions (at a 0.05 level of significance) χ^2 (11) = 946.334, p = 0.000. The second discriminant function is less powerful at discriminating the dimensions that separate the clusters of airline brand perceptions (Λ =0.357), but it is still significant (at a 0.05 level of significance) χ^2 (12) = 560.351, p = 0.000. The third discriminant function is the second most powerful at discriminating the dimensions (Λ = 0.656). The third discriminant function is also significant χ^2 (5) = 229.232, p = 0.000 (see Table 5.17-2).

- The first discriminant function accounts for 43.1% of the variance explained by the three discriminant functions, with the remaining variance (56.9%) due to the second and third discriminant functions.
- The total amount of variance explained by the first discriminant function is 0.713^2, or 50.387%.
- The second discriminant function explained 0.675^2, or 45.463% of the 49.1631% remaining variances (1-0.713^2).
- The third discriminant function explained 0.587^2 (or 34.457%) of the remaining 3.6006% remaining variances (1-0.713^2-0.675^2).
- The total variance explained by three discriminant functions is 74.477% (0.713^2 + (0.675^2 x 0.492) + (0.587^2 x 0.0360) (see Table 5.17-2)

Table 5.17-2 shows the discriminating power and the statistical significance of each discriminant function that distinguishes between the four clusters of airline brand perceptions during the validation process.

Table 5.17-2 Overall model fit: Canonical discriminant functions

Function		Percent of variance						
	Eigen value	Function %	Cumulative%	Canonical correlation	Wilks' Lamda (Λ)	Chi-square (χ^2)	Degrees of freedom	Significance
1	1.034	43.1	43.1	0.713	0.175	946.334	21	0.000
2	0.838	35	78.1	0.675	0.357	560.351	12	0.000
3	0.525	21.9	100	0.587	0.656	229.392	5	0.000

5.17.1 Rotation of discrimination functions

There are three discriminant functions dimensions that distinguished between four clusters of airline brand perceptions. Each discriminant function comprised seven airline product determinant attributes (already identified in section 5.17).

Each discriminant function was rotated using the Varimax method. The purpose of rotation is to redistribute the variance for better interpretations. This improves understanding of how airline product determinant attributes differ amongst the four clusters of airline brand perceptions.

The correlations of airlines product determinant attributes and discriminant functions, after Varimax rotations, show that the discriminant loadings of the airline product determinant attributes were loaded unevenly across the three discriminant functions. Discriminant loading indicates the discrimination power of each determinant attribute.

Table 5.17-3 shows the potency index which indicates the overall discrimination power of each discriminant function and each airline product determinant attribute. The calculation of the potency index is shown in Appendix V.2.

Table 5.17-3 Potency index for the validation of the principal components of airline brand equity and clusters of airline brand perceptions

Airline brand perception measures	Discriminant loadings
'When I think of flying with (airline) I have positive thoughts'	0.871
'(airline) cares about its customers'	0.590
' I hold (airline) in high regard'	0.567
'I talk about (airline) with my friends'	0.726
' I am strongly committed to fly with (airline)'	-0.064
'I see a lot of advertisements about (airline)'	-0.073
' (airline) consistently satisfies me'	-0.146

Table 5.17-4 shows the unstandardised canonical discriminant function coefficients. The means for each cluster of airline brand perceptions are substituted in each discriminant function in order to obtain a typical profile (also known as 'group centroids') of each cluster along those three discriminant functions (comprising airline brand perception measures).

Table 5.17-4 Canonical discriminant functions coefficients for the validation of principal components and clusters of airline brand perceptions

	Discriminant functions		
	1	2	3
' I hold (airline) in high regard'	-0.358	-0.133	0.933
'When I think of flying with (airline) I have positive thoughts'	-0.406	-0.047	0.738
'(airline) cares about its customers'	-0.316	0.143	0.797
'I am strongly committed to fly with (airline)'	0.739	0.222	-0.212
'(airline) consistently satisfies me'	1.155	-0.836	0.089
'I talk about (airline) with my friends'	0.552	0.29	-0.232
'I see a lot of advertisements about (airline)'	0.001	1.198	-0.005
(Constant)	-4.075	-2.298	-8.762

There are three discriminant functions that distinguished between the four clusters of airline brand perceptions. In this validation process, the purpose of the discriminant function is to validate the principal components of airline brand equity, and the clusters of airline brand perceptions. Each respondent's ratings on those seven airline brand perception measures in the discriminant function were entered into each discriminant function. Each respondent was classified into the group with the highest score.

Table 5.17-5 shows the first discriminant function distinguished the 'Loyal customers' cluster from the 'Hard to please customers', 'Asking for consistency customers', and 'Difficult to talk to' clusters. The second discriminant function distinguished the 'Difficult to talk customers' cluster from the 'Hard to please customers', 'Loyal customers' and 'Asking for consistency customers' clusters. The third discriminant function distinguished the 'Hard to please customers'

cluster from the 'Loyal customers', 'Asking for consistency customers' and 'Difficult to talk to customers' clusters.

When the means for each cluster of airline brand perception on those seven airline product determinant attributes are substituted in each discriminant function, the typical profile for each cluster along the three dimensions that distinguished amongst them is demonstrated in Table 5.17-5.

Table 5.17-5 Functions at group centroids

Airline brands	Discriminant functions		
	1	2	3
'Hard to please customers'	-.344	.244	-1.958
'Loyal Customers'	1.178	.636	.247
'Asking for Consistency customers'	-1.506	.596	.314
'Difficult to talk to customers'	-.067	-1.328	.421

The first discriminant function discriminates between the four clusters of airline brand perceptions, as demonstrated in Table 5.17-5. In the first discriminant function, discriminant loadings of each airline brand perception measure are shown in Table 5.17-6. There are three airline brand perception measures with discriminant loadings greater than 0.5 (these are emphasised in bold):

- '(airline) consistently satisfies me'
- 'I am strongly committed to fly with (airline)'; and
- 'I talk about (airline) with my friends'

This dimension validates the brand loyalty factor that was demonstrated by the principal component factor analysis in section 5.8.2.2.

Table 5.17-6 Discriminant loadings of airline brand perceptions in discriminant function 1 (during validation of principal components of airline brand equity and clusters of airline brand perceptions)

Airline brand perception measures	Discriminant loadings
'(airline) consistently satisfies me'	**0.687**
'I am strongly committed to fly with (airline)'	**0.646**
'I talk about (airline) with my friends'	**0.588**
' (airline) cares about its customers'	0.162
'I hold (airline) in high regard'	0.135
'When I think of flying with (airline) I have positive thoughts'	0.102

In the second discriminant function, there is only one airline brand perception measure with a discriminant loading greater than 0.5 (this was emphasised in bold). This is shown in Table 5.17-7.

- 'I see a lot of advertisements about (airline)'

This validates the brand awareness factor that was demonstrated by the principal component factor analysis in section 5.8.2.3.

Table 5.17-7 Discriminant loadings of airline brand perceptions in discriminant function 2 (during validation of principal components of airline brand equity and clusters of airline brand perceptions)

Airline brand perception measures	Discriminant loadings
'I see a lot of advertisements about (airline)'	**0.867**
'I talk about (airline) with my friends'	0.24
'I am strongly committed to fly with(airline)'	0.143
'I hold (airline) in high regard'	0.068
'When I think of flying with (airline) I have positive thoughts'	0.064
'(airline) cares about its customers'	0.055

The third discriminant, there are three airline brand perception measures with discriminant loadings greater than 0.5 are emphasised in bold (shown in Table 5.17-8)

- 'I hold (airline) in high regard'
- 'When I think of flying with (airline), I have positive thoughts'; and
- '(airline) cares about its customers'

Table 5.17-8 Discriminant loadings of airline brand perceptions in discriminant function 3 (during validation of principal components of airline brand equity and clusters of airline brand perceptions)

Airline brand perception measures	Discriminant loadings
'I hold (airline) in high regard'	**0.806**
'When I think of flying with (airline) I have positive thoughts'	**0.731**
'(airline) cares about its customers'	**0.729**
'(airline) consistently satisfies me'	0.43
'I am strongly committed to fly with(airline)'	0.195
'I see a lot of advertisements about (airline)'	0.166

This validates the brand perception factor that was demonstrated by the principal component factor analysis in section 5.8.2.1.

Table 5.17-9 shows the classification accuracy of the discriminant functions. The diagonal element (emphasised in bold) shows the number of respondents that were correctly classified into each cluster of airline brand perceptions in the validation process.

The hit ratio of the analysis sample is 80.366% (48+166+105+123 ÷ 78+189+123+160). In contrast, the hit ratio of the cross-validation sample is 79.818% (47+166+104+122 ÷ 78+189+123+160) (see Table 5.17-9).

Table 5.17-9 Classification results for the validation four-group multiple discriminant analysis for the validation analysis of principal components of airline brand equity and clusters of airline brand perceptions

Analysis	**Predicted group membership**				**Total**
	'Hard to please customers'	'Loyal Customers'	'Asking for consistency customers'	'Difficult to talk to customers'	78
'Hard to please customers'	**48**	10	15	5	189
'Loyal customers'	2	**166**	13	8	123
'Asking for consistency customers'	3	6	**105**	9	160
'Difficult to talk to customers'	1	21	15	**123**	78
Cross-validation					
'Hard to please customers'	**47**	11	15	5	78
'Loyal customers'	2	**166**	13	8	189
'Asking for consistency customers'	4	6	**104**	9	123
'Difficult to talk to customers'	1	22	15	**122**	160

5.18 Validation assessing group membership for prediction accuracy

The hit ratio of the analysis sample is 80.4%. The hit ratio of the cross-validation sample is 79.8%. The hit ratios were compared against three test statistics: Press's Q statistic, Proportional Chance Criterion (PCC) and Maximum Chance Criterion (MCC).

5.18.1 Press's Q Statistic

$$\text{Press's Q} = \frac{[\text{n} - (\text{c} \times \text{g})]2}{\text{n}(\text{g} - 1)}$$

Where

n = total sample size

c = observations correctly classified

g = number of groups

Analysis sample

$$\text{Press's Q} = \frac{[550 - (48 + 166 + 105 + 123 \times 4)]2}{550(4 - 1)}$$

Press's Q = 899.105

Cross-validation sample

$$\text{Press's Q} = \frac{[550 - (47 + 166 + 104 + 122 \times 4)]2}{550(4 - 1)}$$

Press's Q = 881.476

Press's Q statistics of analysis and cross-validation samples were compared against chi-square value with one degree of freedom at both 0.01 and 0.05 levels of significance. The critical values at each level of significance are: 3.84 and 6.63 at each level of significance (see Appendix Y).

Press's Q statistics of analysis and cross-validation samples were both significantly higher than the critical values, showing that the prediction accuracy of the discriminant functions is better than by chance.

5.18.2 Proportional Chance Criterion (PCC)

PCC = $(0.142^2 + 0.344^2 + 0.224^2 + 0.291^2) \times 1.25$

PCC = 0.342 or 34.2%

5.18.3 Maximum Chance Criterion (MCC)

MCC = 0.344 x 1.25

MCC = 0.43 or 43%

The prediction accuracy is also not biased by either the size of each cluster or the largest cluster of airline brand perceptions (as demonstrated by PCC and MCC). The conclusion is that the three factors that represent the structure of airline brand equity and the four clusters of airline brand perceptions are valid.

5.19 Identifying brand message to meets the needs of each group of airline passengers

5.19.1 Summary

In this chapter, it was identified that the structure of airline brand equity has three factors. The first factor highlights the importance of airline brands providing innovative products and good service consistently. The second factor indicates that customer loyalty is derived from the delivery of these innovative products and consistently good service. The third factor highlights the importance of airlines' advertisements in generating airline brand awareness. Based on these factors that establish the structure of airline brand equity, there are four groups of airline passengers with similar airline brand perceptions namely: 'Loyal customers', 'Difficult to talk to customers', 'Hard to please customers' and 'Asking for consistency customers' clusters.

In section 5.13.4, it was demonstrated that there are two dimensions that discriminate between the four airline brands: British Airways, Virgin Atlantic Airways, Emirates and Singapore Airline brands: on-board seating, and modern fleet of aircraft. Given that airline brands are perceived to differ only on these two tangible products (in a business which suffers from a high degree of similarity between tangible products), it would seem that the sources of differences in airline brands are the intangible features.

In comparison, section 5.15, identified and discussed the three dimensions that distinguished between the four groups of airline passengers with similar airline brand perceptions. The first dimension highlights the importance of airline brand value propositions delivering value for money from services (intangible) and products, (tangible) and travel support tools on the internet. The second dimension highlights price and the third dimension highlights time sensitivity - the least powerful dimension.

In order for each airline brand to communicate brand value propositions to meet the needs of each group of airline passengers with similar brand perceptions,

there are two additional factors to consider. Firstly, each airline is different in its branding and products and services strategies. Therefore, the tactics and strategies that each airline can adopt will also be different. Secondly, although each group of airline passengers comprises those with similar airline brand perceptions, they may have different backgrounds and demographic profiles. This suggests that, in order for airline brands communication and advertising to be effective, it is necessary to take into account these background factors.

Suitable airline branding and communication messages for each group of airline perceptions will be determined. This will be achieved by considering: the association between the four groups of airline passengers with similar airline brand perceptions; background demographic profile information (discussed in section 5.10); and the airline product determinant attributes that discriminate between each group of airline passengers

5.19.2 The 'Loyal customers' cluster

This cluster (n=189) accounts for 34% of the respondents. In order for airline brands to meet the needs of the 'Loyal customers' cluster, airline brand value propositions need to deliver value for money from services that airline staff provide as well as tangible product and travel support tools on the internet. This cluster has the highest proportion of business travellers (60.8%).

This cluster also has the highest proportion of male passengers (53.4%), in contrast with previous studies by Westwood et al. (2000) which suggested that female business travellers comprise a lucrative and growing niche market segment. This study finds no evidence to suggest that airline brand message needs to be gender-specific with regard to female business travellers.

In section 5.9.4.2, it was proposed that the members of the 'Loyal customer' cluster comprise airline passengers who have moderate perceptions of airline brands. Members of this cluster are satisfied with their air travel experience, which, in turn, encourages brand loyalty. However, in section 5.12, it was illustrated that, despite holding similar airline brand perceptions, the members of this cluster consist of airline passengers with different air travel behaviour, in

terms of trip frequency. This shows the difficulty for airline brands in meeting the needs of this cluster. The members of this cluster comprise high frequency leisure (short and long-haul), and business long-haul passengers.

In order to communicate with this cluster for leisure trip purposes, airline brand messages can be specifically targeted at the cluster member because they are more likely to choose the airline brand themselves (86.8%). Similarly, for business trips, members of this cluster also choose the airline themselves (62.7%), while a smaller proportion use the travel department within their organisation (31.4%). A much smaller proportion uses an external agent such as a Travel Management company (2.5%). Thus airline brand messages can be specifically targeted at members of this cluster. However, when their choice of airline is also influenced by the business travel policy of their employee, there may be difficulty in communicating with this cluster.

'Loyal customers' are also more likely than members of other clusters to have travelled business or first class (40.7%). This suggests that full-service carrier brands should also emphasise premium products such as exclusive airport lounges, priority reservation lines, and fast track immigration services, in order to attract business travellers. Airline advertisements of these products should be directed at the members of this group. In section 5.15, it was discussed that the 'Loyal customer' and the 'Asking for consistency customers' are most similar in their value for money emphasis with regard to airline products and services. Despite this similarity, it was demonstrated in section 5.10.15, that the members of the 'Loyal customer' cluster are most likely to have travelled in business or first class.

5.19.3 The 'Asking for consistency customers' cluster

This cluster (n=123) accounts for 22% of the respondents. This cluster contains more leisure travellers than any other cluster (66.7%). The cluster has the highest proportion of airline passengers that who have not travelled in business or first class (80.7%). In section 5.15, it was illustrated that this cluster is most similar to the 'Loyal customer' cluster in that they seek value for money for

service and tangible products and travel support tools on the internet. This suggests that the brand value propositions of this cluster need to emphasise the general airline products and services that are available to economy class passengers travelling for leisure purposes. The members of this cluster make more 1-2 short-haul leisure trips than other clusters (54.9%). However, they make fewer long-haul leisure trips. This illustrates the difficulty for airline brands in developing brand association with long-haul leisure travellers.

5.19.4 The 'Hard to please customers' cluster

This cluster (n=78) accounts for 14% of the respondents and has a high proportion of business travellers (59%). The 'Hard to please customers' cluster comprises airline passengers who have the poorest perceptions of airline brands. It is the smallest of the four clusters and is also more likely to choose the British Airways brand.

In section 5.13, it was illustrated that the British Airways brand was perceived as being the poorest in providing tangible products (on-boarding seating and aircraft). However, in section 5.15, it was shown that the discriminant function, which highlights the third dimension that discriminates amongst the four clusters of airline brand perceptions, has the least discrimination power. The discriminant loading in this third discriminant function, containing convenient flight schedule, high flight frequency and availability of airline website, had little influence over airline choice (as shown in section 5.15). This suggests that airline brand messages that emphasise convenient flight schedules, frequent flights to destinations, and available websites will only appeal to a small group of airline passengers.

This cluster is also the second least price-sensitive. In combination, this suggests that the 'Hard to please customers' cluster consists of time-sensitive, but price-insensitive business travellers. This represents a small group of airline passengers. Thus, airline brands such as British Airways' Club Europe and United Shuttle, which emphasise all those benefits, would only appeal to a small segment of airline passengers. However, despite the small size, full-service

carrier brands generate a large proportion of revenue from this group of airline passengers. This suggests that it is still important for full-service carrier brands to emphasise convenient flight schedules and high flight frequency, in order to attract this market segment.

In section 5.10.12, it was pointed out that business travellers are more likely to choose a full-service carrier brand because their travel plans are highly influenced by corporate travel policy (Mason, 2001). Business travellers from smaller organisations are more likely to choose a low-cost carrier brand, due to cost issues. The members of the 'Hard to please customer' cluster generally come from organisations with fewer than 1000 employees (23.9% - 1-24 employees, 23.9% - 25 – 99 employees, and 26.1% - 100 – 999 employees). This indicates that a high proportion of business travellers in this cluster come from small organisations. This suggests that, firstly, low-cost carrier brand value propositions that do not emphasise a wide range of products and services are appropriate to meet the needs of this cluster, provided the time-sensitivity requirement is satisfied. Secondly, this supports the conclusion that it is important for full-service carrier brands to emphasise high flight frequency and convenient flight schedules in order to maintain their base of loyal business travellers.

5.19.5 The 'Difficult to talk to customers' cluster

This cluster (n=160) accounts for 29% of the respondents. The 'Difficult to talk to customers' cluster comprises a high proportion of leisure travellers (56.2%). The members of this cluster are difficult to communicate with, because they are least exposed to airlines' advertisements. This cluster is also the most price-sensitive. This suggests that, for these price sensitive travellers, airlines' products and services have little influence on their choice of airline brand. Thus the 'Difficult to talk to customers' cluster can be regarded as the secondary market segment for full-service carrier brands to pursue. This is because full-service carrier brand value propositions emphasise a range of products and services. Secondly, full-service carrier brand generate significant revenue from business travellers (Dresner, 2006). This suggests that low-cost carrier brands

that can meet the needs of this cluster more efficiently than full-service carrier brands.

For leisure trips, the members of this cluster choose the airline themselves. Whereas for business trips, they tend to use the internal travel department more than the other clusters (44.3%).

5.20 Conclusion

The general construct of airline brand equity has three factors. The first factor shows that a distinctive brand is created by the consistent provision of innovative products and good service. The second factor reflects the outcome of being able to deliver on the components of the first factor. The third factor highlights the crucial role airline advertisements perform in generating airline brand awareness. There are four groups of airline passengers with similar airline brand perceptions: the 'Loyal customers', 'Hard to please customers', 'Difficult to talk to customers' and the 'Asking for consistency customers' clusters. The determinant attribute analysis has illustrated that the most influential determinant attribute for each cluster is different.

The 'Loyal customers' and the 'Asking for consistency customers' clusters are comprised of airline passengers who seek value for money from airlines' services and tangible products. The two clusters seek similar benefits. The significant difference between these two groups is that the former group is more likely to have travelled in first and business class, whereas, the latter group are more likely to be economy class leisure travellers. Both the 'Loyal customers' and 'Asking for consistency customers' clusters constitute important market segments for full-service carrier brands to pursue.

The lack of association between the 'Loyal customer' cluster and the four main airline brands identified in the online questionnaire illustrates the difficulties in meeting the needs of this group of airline passengers. This research suggests that the 'Loyal customer' cluster is the prime market segment for the full-service carrier brand to pursue. Whereas, the 'Asking for consistency customers' cluster is a segment of airline passengers that can be pursued by both full-service carrier and low-cost carrier brands.

The 'Hard to please customers' cluster comprises time-sensitive but price-insensitive business travellers. The majority of the members of this cluster come from organisations with fewer than 1000 employees. This cluster constitutes a potential market for the low-cost carrier brand to pursue, because the choice of

airline brand for business travellers from smaller organisations is often influenced by strict travel policy which determines the choice of a low-cost carrier brand. The 'Difficult to talk to customers' cluster is the most price-sensitive group of airline passengers. Price is the most influential determinant of airline choice for this cluster, while tangible products and services (which full-service carrier brand value propositions often emphasise) have little influence on their airline choice. This suggests that full-service carrier brand value propositions which emphasise a wide range of tangible products would have little influence on airline brand choice amongst the most price-sensitive airline passengers.

In this chapter, it was illustrated that the general construct of airline brand equity has three factors. The first factor highlights perceptions of airlines' products and services. The second factor highlights the loyalty which results from airline brands being able to deliver on the first factor. The third factor highlights the importance of airline brand awareness. Section 5.7.1, shows that the airline brands with the highest brand awareness scores are the British Airways, EasyJet, Virgin Atlantic Airways and Qantas Airways brands. Airline brand awareness was recorded using the top of mind method which shows that, in terms of the depth or the ease of airline brands being recalled, those four airline brands were most easily recalled. Amongst these four airline brands, the only low-cost carrier brand was EasyJet. Despite the EasyJet high brand-awareness score, it was not mentioned as an airline 'most like to fly with' by the online questionnaire respondents. This reinforces the findings of this research which highlight the importance of airline brand awareness as an important component of airline brand equity. However, brand awareness alone is not sufficient in establishing airline brand equity. In order to establish brand equity, brand awareness is an important prerequisite; however, brand value propositions that consist of suitable tangible products and services need to be delivered to meet the needs of each cluster of airline passengers.

Establishing brand awareness is the common pre-requisite for both low-cost and full-service carriers in establishing airline brand equity. However, because

full-service carrier brand value propositions also emphasise the provision of tangible products and service, it is the delivery on this factor that will help full-service carrier brands to establish brand equity. In contrast, for low-cost carrier brands, once brand awareness has been established, it is the ability for the brand value proposition to deliver low prices consistently to the market segment that will help them to establish brand equity.

In chapter 6 findings from the exploratory study and segmentation study will use broader samples in the development of suitable brand value propositions for each airline.

Chapter 6 Conclusion

This research was established to meet the following research objectives:

1. To explore and identify the factors that influence airline brand equity.
2. To propose tactical and strategic approaches that may be adopted by airlines to build brand equity.
3. To determine the size and profile of each market segment; and
4. To determine appropriate advertising and communication messages that appeal to each market segment.

The first research objective ("To explore and identify factors that influence airline brand equity' was explored in chapters 4 and 5. In chapter 4, the exploratory study, conducted with focus groups of business and leisure travellers, showed that the strongest secondary association of airline brands relates to nationality or the unique themes that are used in airlines' advertisements. These intangible cues play an important role in triggering airline brand awareness and the unique benefits that each airline brand delivers. If the intangible cues trigger benefits that are not unique, they will contribute little to the creation of a distinctive brand. Therefore, the key to creating a distinctive brand is to create brand awareness, then emphasise the unique benefits that airline passengers are seeking and which other airline brands cannot deliver. When an airline brand is not distinctive, perhaps because it communicates similar messages to those of other airline brands, passengers do not understand the message it is intended to communicate. The result of the exploratory study suggests that the structure of airline brand equity for full-service carrier and low-cost carrier brands may be different, because, despite poor perceptions of and dissatisfaction with brands, focus group participants would still choose low-cost carrier brands. This suggests that it is the ability of low-cost carrier brands to provide low fares that is the key to the establishment of a clear and distinctive brand. In contrast, full-service carrier brands, which emphasise a wide range of airline products and services, need to deliver on those brand promises in order to establish their brand equity. Findings from this

exploratory study guided the structure of the segmentation study which was detailed in chapter 5.

In chapter 5, the findings from the questionnaire-based segmentation study, using a representative sample of business and leisure travellers, show that the structure of airline brand equity has three factors. The first factor shows that airline brand equity is derived from providing suitable, innovative, tangible products and by delivering consistently good service. The second factor is a reflection of the first, showing that airline brands which can deliver innovative products and good service consistently will establish a loyal customer base. The third factor shows the important role of airlines' advertisements in creating their brand awareness.

The third research objective ("To determine the size and profile of each market segment") was explored in chapter 5. Based on these three factors, which represent the structure of airline brand equity, four clusters of airline brand customers were identified: 'Loyal customers' (n=189/550), 'Asking for consistency customers' (n=123/550), 'Hard to please customers' (n=78/550) and 'Difficult to talk to customers' (n=160/550) clusters (see section 5.9.4). The profiling of the cluster has demonstrated that the 'Loyal customers' cluster (the largest segment) comprised of members with wide ranging trip characteristics, this illustrate the difficulties in meeting the needs of this cluster.

The fourth research objective ("To determine appropriate advertising and communication messages that appeal to each market segment") was explored in section 5.10. In the past, airlines' brand messages have been based on airline passengers' demographic background, such as: trip purpose (business or leisure), trip duration (short or long-haul). This thesis has demonstrated that airline brand messages, when they are based on those demographic attributes, are less effective in meeting the needs of airline passengers. It has been illustrated that airline brand perceptions and demographic attributes such as age (see section 5.10.4), gender (see section 5.10.1) and employment status (see section 5.10.11) are not related. Similarly, airline brand messages that vary by trip purpose, and are targeted specifically at business and leisure

travellers (see section 5.10.2), trip frequency (see sections 5.10.7, 5.10.8, 5.10.9 and 5.10.10) and class of on-board travel (see section 5.10.15) provide limited insights, because there is little association between them. The determinant attribute analysis revealed that the determinant attribute for the choice of airline brand for each group of airline passengers is different. The 'Loyal customers' and 'Asking for consistency customers' groups both seek value for money from the services that airline staff provides, tangible products and a travel support tool on the internet. In contrast, the 'Difficult to talk to customers' is the most price-sensitive segment, while the 'Hard to please customers' is the most time-sensitive.

Full-service carriers' brand value propositions emphasise a wide range of products and services, and generate a significant amount of their revenue from business travellers. In contrast, low-cost carriers' brand value propositions are different because they emphasise price and generate a significant proportion of their revenue from leisure travellers. This indicates that full-service carrier brand value propositions would have little influence over the choice of airline brand amongst the group of airline passengers who are most price-sensitive (i.e. the 'Difficult to talk to customers' group). This suggests that low-cost carrier brands, which emphasise their low price, can meet the needs of the most price-sensitive segment better than full-service carrier brands can.

This research highlighted the difficulties airlines face when establishing airline brand equity. The aim of this chapter is to suggest suitable tactics and strategies that each airline can adopt in order to build brand equity (objective 2).

This chapter comprises six sections:

- Section 6.1 will discuss the theoretical contribution this research has made to the brand equity literature.
- Section 6.2 will illustrate how that theoretical understanding may be applied to airline brands. This will be discussed by highlighting how airline brand value propositions may be developed along the three stages of brand relationships between an airline and its passengers:

before, during and after the trip. The outcome of the application is an understanding of what constitutes a 'good' airline brand.

- In section 6.3 the understanding of what constitutes a 'good' airline brand is discussed further with illustrated case studies of the British Airways, Singapore Airlines and Qantas Airways brands.
- Section 6.4 presents recommendations that can be implemented by low-cost carriers and full-service carriers in order to build brand equity.
- Section 6.5, will identify the limitations encountered in this research.
- In section 6.6, and building on the limitations that were identified, suggestions for future research will be discussed.

6.1 Theoretical contributions

This thesis has demonstrated that the structure of airline brand equity for low-cost carrier and full service carrier brands is different. Aaker, (1996) proposes that brand equity is comprised of brand awareness, brand associations, perceived quality and brand loyalty. By comparison, (Keller, 1993) argues that, for brand equity to be established, the prerequisite is to establish brand awareness and a strong, positive and unique brand image. When comparing the brand equity models proposed by Aaker (1996) and Keller (1993), Aaker argues that the proportionate weighting for each of the four components, i.e. perceived quality, brand awareness, brand associations and brand loyalty, are different in each sector. After brand awareness has been achieved, the process of establishing brand equity for low-cost carrier brands is closely related to Aaker's model, because the proportionate weighting emphasises only low fares, instead of other components of brand equity proposed by Aaker. This single prerequisite (in addition to brand awareness) helps low-cost carriers attract a large base of customers.

By comparison, full-service carrier brand value propositions emphasise a wide range of products and services. Thus, full-service carrier brands need to not only establish brand awareness, but also achieve a strong, positive and unique

brand image in order to establish brand equity. This contrasting scenario suggests that the establishment of low-cost carriers is more closely related to Aaker's brand equity model, whereas, full-service carriers are more closely related to Keller's brand equity model.

Low-cost carriers' brand value propositions emphasise low fares and generate significant revenue from price-sensitive leisure travellers. Therefore, it is their ability to deliver on these low fares, to these groups of airline passengers that are the key to establishing brand equity. This does not mean that those low-cost carrier brands can overlook core products and essential attributes such as safety records and punctuality. These are still an important part of an airline brand. However, these are assumed to be similar to other competing airline brands. Emphasising these attributes will have little influence on airline choice and the establishment of airline brand equity.

Brand messages that emphasise the benefits of core products and essential attributes, such as safety records, can be used when other competitors' brands are perceived to be lacking in these attributes. For example, the Korean Air and China Airlines brands were once perceived as having poor safety records. Hence, the Asiana Airlines and EVA Air brands were both able to create distinctive brands by emphasising safety.

Section 6.2 will discuss how brand value propositions of full-service and low-cost carriers can be developed in order to meet the needs of airline passengers. The development of suitable brand value propositions will be discussed along the three stages of passengers' journeys: before, during and after the trip.

6.2 Brand value proposition development

6.2.1 Stage 1: Before the trip

Brand awareness is a common prerequisite for both low-cost and full-service carrier brands in establishing brand equity. This first stage occurs when passengers begin information searches to compare alternatives between airline brands. The salient features of airline brands are related to the national or cultural associations of the country of the airline or the unique icons that each airline uses. For example, Sir Richard Branson was used in the advertisements for the Virgin Atlantic Airways brand. These iconic features are useful in triggering brand awareness, an important first prerequisite in establishing brand equity, because it means that the airlines are in the customers' consideration set.

In order for full-service and low-cost carrier brands to establish brand awareness, advertisements can emphasise the salient features of the brand. The aim of an advertisement is to register the airline brand in the airline passengers' consideration set. An airline's advertisement can point out salient features such as:

- 'Convenient flight schedules'
- 'Frequent fights to destination'; and
- 'Availability of airline website'

The above attributes constitute the third dimension that discriminates between the four groups of airline passengers who hold similar airline brand perceptions. The above determinant attributes have little influence on the choice of airline brand although they are still suitable messages for the purpose of generating airline brand awareness. For example, the Qantas CityFlyer and British Airways Club Europe brands both emphasise high flight frequency. However these are not the most influential determinant attributes for choice of airline brand, indicating that airline brands which emphasise these attributes can only generate brand awareness. After airline brand awareness has been

established, airline brand value propositions need to emphasise other benefits in order to drive airline brand choice.

Amongst low-cost carrier brands, it is accessibility to the necessary resources and the ability to deliver *low fares* consistently that helps them establish powerful airline brands. This was demonstrated in chapter 2 where, for example, Ryanair's significant cost-management measures and efficient operations minimised costs and helped the airline to deliver low fares. The emphasis on low fares helps to attract a large base of repeat customers, which further strengthens airlines' bargaining power with airport authorities. These bargaining tactics, in turn, help low-cost carrier brands to minimise their expenses, in order to offer low fares which attract price-sensitive customers. Section 5.19.5, has demonstrated that amongst the most price-sensitive travellers, other tangible products and services have had little influence on their choice of airline. Hence, for low-cost carrier brands, it is the ability to provide low fares consistently to meet the needs of the most price-sensitive travellers that encourages repeat purchase. This process is illustrated in Figure 6.2-1.

Figure 6.2-1 shows a contrasting perspective, from the general construct of airline brand equity, which assumes that it is satisfaction with products and services that will lead to loyalty. This shows that when price is the most influential determinant attribute, it is the most influential factor in encouraging repeat purchases.

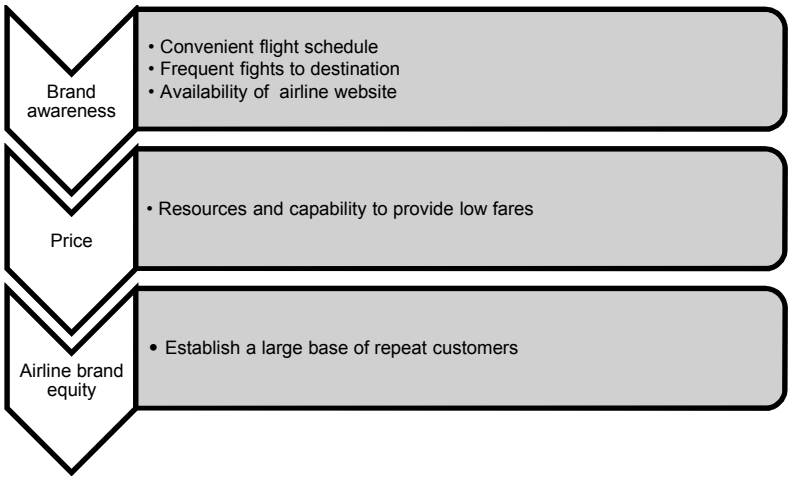


Figure 6.2-1 Prerequisites for establishing brand equity for low-cost carrier brands

In section 5.15, it was demonstrated that the information which airlines provide on websites is a highly influential determinant. This highlights how airlines can build direct relationships with customers, using the internet, without having to rely solely on intermediaries such as travel management companies.

The first priority for airlines is to ensure that websites contain useful information about products and pricing. The second is to establish working relationships with other intermediaries such as travel management companies (travel agents), because online methods cannot entirely replace these intermediaries; non-confident internet users or those without access to the internet will still rely on offline methods. Intermediaries still play an important role in communicating airline brand benefits such as route network and details of airlines' product information. For example, sales representatives can visit travel management companies to ensure that those companies have correct and current information about their airline's products.

6.2.2 Stage 2: During the trip

This second stage, during the trip, is the crucial time when airline brands deliver the benefits and promises that were made. In order to establish brand equity, low-cost carriers and full-service carriers face different challenges.

Full-service carrier brand value propositions focus on providing *a wide range of products and services*. In order for full-service carriers to establish brand equity, there are five prerequisites to be met. The first is to establish *brand awareness* (this was discussed in section 6.2.1). The second is the ability to deliver *good service* consistently. The third is the ability to *provide suitable tangible products*. The fourth is to provide travel support tools on the internet. The fifth and final prerequisite is the ability to *provide intangible differentiators*. These five sequential steps show that the process of establishing brand equity for full-service carriers more closely follows Keller's (1993) customer-based brand equity model, because each step has to be satisfied sequentially. This is illustrated in Figure 6.2-2.

In order for full-service carrier brands to meet the *second prerequisite* of consistently good services, it is important to provide training for frontline staff. This research has emphasised that the key to providing good service is for airlines to provide adequate training for their employees; examples are British Airways' 'Putting People First' programme and Singapore Airline's 'Service Over and Above the Rest' programme. These training programmes help to standardise service delivery. It is acknowledged that airlines are increasingly outsourcing these customer service tasks to third-party companies. This also shows that it is important for airlines to work in close liaison with third-party service contractors, in order to ensure that they can deliver the type of service that the full-service carrier brand wishes to provide.

For full-service carrier brands, the airport experience on departure and arrival is also an important part of the journey. Delivery of baggage upon arrival is one of the most influential determinants for airline choice, yet the airlines do not have complete control over airports' facilities. Airlines with home-market dominance generally have control over home airports; for example, British Airways has an exclusive facility at London Heathrow Terminal 5. Similarly, Singapore Airlines invests significantly in facilities such as airport lounges at its home base at Singapore Changi Airport. When British Airways had an exclusive facility at New York's John F. Kennedy Airport, this enabled the British Airways brand to

provide a consistently high level of service at both ends of the journey. This external factor illustrates the barriers for full-service carriers in providing consistent levels of service and a totally differentiated brand experience.

The *third prerequisite* for full-service carrier brands is to deliver brand value propositions from the most influential tangible determinants for airline choice which are having a personal on-board entertainment system and adequate seat space on board the aircraft. Both personal entertainment systems and on-board seating require significant investment, because they need to be updated periodically. The level of importance of these products varies when travelling short or long-haul and the rate of change in technology means that it is difficult for airlines to innovate and update products constantly. Both these reasons explain why it is difficult for full-service carriers to introduce not only suitable tangible products, but also those that are truly unique.

In order for full-service carrier brands to deliver value for money, price-bundling strategies can be adopted for the most influential tangible determinants such as rental of personal on-board entertainment systems, buying seats with additional seat space and offering various fare types with different mileage-earning options. It also means that airline passengers may perceive that full-service carrier brands do not offer significantly different benefits from low-cost carrier brands. This signals that full-service carriers will need to communicate clearly their pricing information, such as which fare type is eligible for mileage accrual and how price-bundling options operate.

This reinforces the importance of the *fourth prerequisite* which is to provide adequate information through the airlines' websites, so that customers can learn more about airlines' price-bundling methods and assess their value-for-money benefits accordingly. The difficulty for full-service carriers in establishing brand equity may explain the rise in hybrid airline brands. For example, the Jetblue Airways brand provides similar benefits to both full-service carriers and low-cost carrier brands, such as using primary airport gateways, in-flight entertainment, complimentary light snacks and beverage services, while adopting price

bundling on items that are less influential in airline choice, such as amenity kits and checked baggage.

The *fifth prerequisite* for full-service carrier brands is to provide intangible differentiators. The first four prerequisites must be satisfied first, before the intangible differentiators can further add to the distinctiveness of the airline brand. An airline may be able to deliver intangible differentiators, such as favourable national and cultural associations. For example, the intangible differentiators used by Singapore Airlines are the 'Romance of Travel' theme featuring the iconic Singapore Girls. In section 5.13.4, the British Airways brand example illustrates that, although the initial secondary associations are highly favourable, it is the airline's *lack of suitable tangible products* that separates it from other airline brands. Both the Singapore Airlines and Virgin Atlantic Airways brands invest significantly in tangible products, and thus they provide examples of airline brands that can differentiate between tangible and intangible elements. These five prerequisites for full-service carrier brands are illustrated in Figure 6.2-2 .

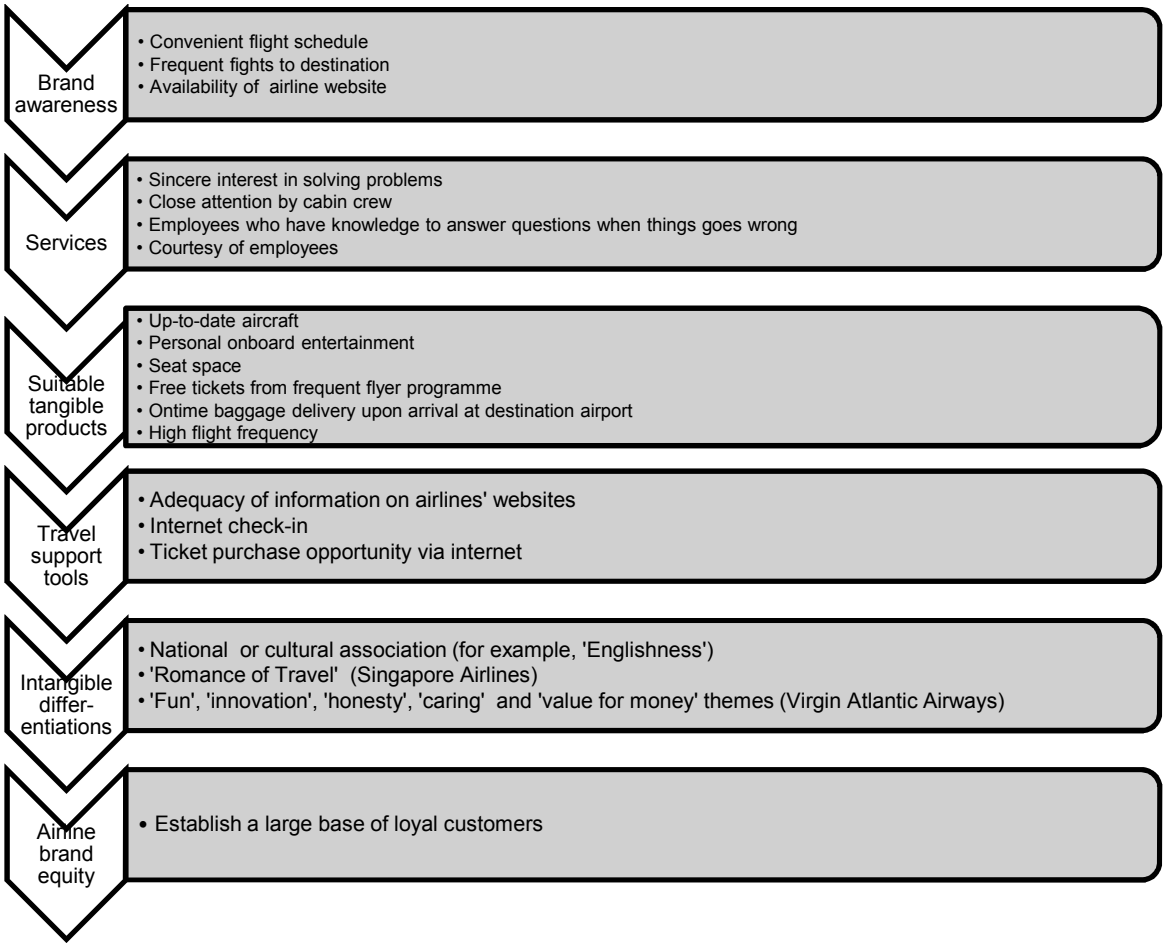


Figure 6.2-2 Prerequisites for establishing brand equity for full-service carriers' brands

6.2.3 Stage 3: After the trip

The relationship that airlines develop with their customers before the trip can be extended after the air travel journey has been completed. This can be achieved by maintaining good communication with customers. The emphasis on on-going communication is different between low-cost carriers and full-service carriers' brands. It has been demonstrated that between low-cost carrier brands, it is the low fares that encourage repeat purchases. In comparison, between full-service carrier brands, where promised benefits are from the consumption of tangible products, not only is it important for airlines to deliver on these benefits, but, if the products malfunction, good after-service recovery is the key. For full-service carrier brands, this is an opportunity to further fulfil the commitments on service.

It is difficult to maintain on-going relationships with customers after the journey has ended, yet such communication is important, not only when a service has failed. Instead, full-service carriers can encourage customers to communicate with the airlines by sharing their experience, and offering suggestions as to where improvements can be made. The problem is that it is normally only the most satisfied and least satisfied customers who take the time to communicate with the airline. Thus a large majority of airline customers only interact with the airline while travelling. This highlights the advantages of adopting the compound branding strategy that Virgin Atlantic Airways uses, because the Virgin brand interacts with customers not just while they are travelling, but also while they engage in everyday activities. In contrast, other airline brands engage with customers only while travelling or through advertising methods such as the sponsorship of events or online methods via social networks such as Facebook and Linkedin. This research highlights the internet as being an important communication and travel support tool. This reinforces how the internet can also be used by airlines in order to maintain more open communication with customers.

6.3 Understanding what a 'good' airline brand means

The difficulties in providing both differentiated products and services during the trip are the main challenges that hinder full-service carriers in establishing brand equity. Full-service carrier brand value propositions consist of those from both tangible and intangible sources. It is difficult for full-service carriers to provide both differentiated tangible products and service. In the hotel sector, hotel brands can provide significantly differentiated tangible products and levels of service. For example, the Courtyard and the Ritz Carlton are hotel brands of the Marriott Hotel Group, yet the tangible products and services provided by each brand are significantly different. The Courtyard brand was established to meet the needs of business travellers. Hence, each hotel room is equipped with a separate working area allowing business travellers to work while staying at the hotel. The Ritz Carlton brand is significantly different because it delivers luxurious amenities and a high degree of service personalisation.

Airlines, however provide a relatively generic product and service, regardless of whether passengers are travelling short or long-haul. The tangible products such as on-board seating are also similar, regardless of trip duration.

This section has demonstrated that a good airline brand is one that can provide both differentiated tangible product and service in order to meet the needs of each group of airline passengers. In section 6.4, illustrative case studies demonstrate the typical challenges that full-service carrier brands are facing.

6.4 Illustrative case studies

This section will provide illustrative case studies of the British Airways, Singapore Airlines and Qantas Airways brands. The British Airways brand illustrates the typical challenges facing full-service carrier brands. The Singapore Airlines and Qantas Airways brands both illustrate how the establishment of separate low-cost brands that provide significantly differentiated, tangible products and services can help both the parent and the subsidiary airline brands to pursue different market segments of airline passengers.

6.4.1 The British Airways brands

As discussed earlier in section 2.4, the British Airways brand is an example of a full-service carrier brand operating in both the short and long-haul markets. Each sub-brand provides similar tangible products such as bigger seats, on-board dining and a personal entertainment system. Similarly, both Euro Traveller and World Traveller brands are sub-brands targeting leisure travellers in the short and long-haul duration market respectively. In section 5.9.4.2, it was demonstrated that the 'Loyal customer' cluster is a lucrative market segment, because this group of airline passengers (members of this cluster) are those for whom satisfaction encourages loyalty. The members of this cluster seek value for money from services and tangible products. However, the group is comprised of airline passengers with different trip characteristics. It is difficult for full-service carrier brands to meet the needs of this group of airline passengers, because it is difficult to offer different tangible products to support each sub-brand that are suitable for both short-haul and long-haul passengers. The adoption of a price-bundling strategy for the most influential determinants may cause conflict between the sub-brand and the corporate brand of British Airways. The British Airways brand may also be perceived as being similar to the low-cost carrier brand that also adopts the price-bundling strategy.

The brand value proposition of the premium economy class brand (such as the 'World Traveller Plus') is a hybrid between the economy and business class product. The business class and first class product would only appeal to a small group of airline passengers, while the 'Euro Traveller' brand faces direct competition from low-cost carrier brands. This suggests that a premium economy class brand such as 'World Traveller Plus' is how a full-service carrier may deliver value for money from services and tangible products because it offers distinctive tangible products that low-cost carriers do not provide. The success of low-cost carrier brands illustrates that it is not necessarily the brand which generates the highest fares that is most powerful. A full-service carrier can use the premium economy class brand to deliver value for money via its superior standard of service and tangible products and differences from low-cost carrier brands.

There are airline brands such as Open Skies (a British Airways brand) that provide only business class products; these too deliver similar benefits to those offered by full-service carriers' business products, such as larger seats and airport lounges. It was recently announced that the Open Skies brand will offer a premium economy class cabin. This product is similar to the World Traveller Plus sub-brand. However, each sub-brand remains distinctive because the Open Skies brand does not operate on the same route as the parent airline brand of British Airways.

6.4.2 The Singapore Airlines brands

In contrast, the Singapore Airlines and Qantas brands have each established subsidiary brands to pursue different target markets. The establishment of the Silk Air and Tiger Airways brands have helped the Singapore Airlines brand to focus on the premium (least price-sensitive) segment in both short and long-haul markets. Each brand (i.e. the Silk Air and Tiger Airways brands) provides significantly different tangible products.

Silk Air is a full-service subsidiary brand that was established specifically to meet the needs of short-haul leisure travellers. The brand value proposition of the Silk Air brand is comprised of tangible products and services suitable for the short-haul market. For example, the Silk Air brand offers two classes of on-board service, business and economy, but because the brand was established to meet the needs of short-haul travellers, its business class products are significantly different from those that Singapore Airline provides. There is an overlap in the short-haul market between the Singapore Airlines and the Silk Air brands. The Tiger Airways brand was established to meet the needs of the most price-sensitive, short haul travellers. Therefore, its tangible product is significantly different from both the Silk Air and Singapore Airlines brands. Each brand remains distinctive because the destinations served are mostly different.

6.4.3 The Qantas brands

The Qantas Airways brand is similar to the Singapore Airlines brand example. The Jetstar Airways brand was established to pursue the needs of price-sensitive leisure travellers. The Jetstar Airways and the Qantas brands offer significantly different tangible products and services. The Jetstar Airways brand offers significantly fewer products and services.

The establishment of the Jetstar Airways brand value proposition is significantly different from the Qantas' brand. The Singapore Airlines and Qantas brands examples of establishing a subsidiary with a significantly different brand value proposition helps these brands to focus on the highest price and value tier market segments, while using different subsidiary brands that have different brand value propositions to pursue different market segments.

The comparison between the full-service carrier examples demonstrated using the British Airways brand example (in section 6.4.1), the Singapore Airlines brands (demonstrated in section 6.4.2) and the Qantas brands (demonstrated in section 6.4.3), shows that the establishment of separate brands with different value propositions helps to prevent brand confusion between the parent and its subsidiary brands.

The British Airways brand, in particular, has additional challenges in ensuring that travellers have the correct perceptions of each sub-brand, but also that this perception is consistent with the corporate brand. The adoption of a price-bundling strategy also means that the British Airways brand does not offer unique benefits in comparison with other low-cost carrier brands.

6.5 Recommendations for airlines

The first prerequisite for both low-cost and full-service carrier brands is to establish brand awareness. The airline brand is purchased because it is a service, providing transportation. The breadth of airline brand awareness is generally specific to flying. The exception is when a compound branding strategy is adopted, where the brand will engage with airline passengers in other usage situations. This emphasises the importance of the depth of airline brand awareness, i.e. airline passengers ought to be able to recall the airline brands if they are going to choose them for their travel needs.

In generating airline brand awareness, at the most basic level, the full-service carrier (the parent airline brand) and the low-cost subsidiary brands need to serve different destinations. The differences in destinations served will need to be emphasised while airline brand awareness is being established. This is the first step to ensuring that the parent and the low-cost subsidiary airline brand each pursue different target market segments of airline passengers. For example, it is full-service carrier brands that generate a significant proportion of revenue from business travellers. In order to generate airline brand awareness amongst business travellers, full-service carrier brand value propositions need to emphasise high flight frequency and convenient flight schedules. Although these are not the most influential determinants of the choice of airline brand, they are important for generating brand awareness amongst the primary target market segment of full-service carriers.

For the full-service carrier brand, the illustrative case study using British Airways demonstrates that it is important for both the corporate brand and sub-brand to each have a distinctive brand image. This suggests that, in the ‘before the trip’ stage, the information that airlines provide, through the airline websites’ intermediaries such as Travel Management companies, will play a vital role in communicating the full-service carrier brand value propositions.

After airline brand awareness has been established, airline brands need to deliver both intangible and tangible benefits. The first type of intangible benefit is the good customer service that airline staff provide. This reinforces the crucial role of airline frontline staff in communicating brand differentiations. This intangible benefit (i.e. customer service) needs to be delivered alongside suitable tangible products. The Singapore Airlines and Silk Air and Tiger Airways brand examples illustrate how the provision of differentiated services (intangible) and product (tangible) helps to create a distinctive brand, because the parent and the subsidiary airline brands are different for both the tangible and intangible attributes. The second type is the intangible differentiations that deliver the differentiated travel experience. These are, for example, the 'Romance of Travel' and the 'fun' themes that the Singapore Airlines and Virgin Atlantic Airways brands use which help each airline brand to provide differentiated levels of service and product.

6.6 The limitations of this research

This research lacked airline brand perceptions and product importance assessments of low-cost carrier brands as respondents, when asked to name an airline they 'most like to fly with', tended to name a full-service carrier brand. Consequently, data were not captured for low-cost carrier brands.

The online questionnaire was designed to cater for both full-service carrier and low-cost carrier brands. A number of measures were already implemented. First, in the assessment of airline brand perceptions and product importance, each respondent was asked to name an airline they 'most like to fly' with. If a full-service carrier brand was named, comparisons with two other full-service carrier brands were made. Similarly, if a low-cost carrier brand was named, then two other low-cost carrier brands were used for comparison.

Second, the questionnaire was pre-tested using a questionnaire hosting facility provided by www.surveymonkey.com. This hosting facility lacked the branching pattern, randomisation of questions and 'piping-in' of respondents' questions capabilities that were available when the actual online questionnaire was implemented by Researchnow. In the online questionnaire, randomisation (on the 21 airline brand perception measures), branching pattern and 'piping-in' capabilities were already implemented to minimise respondents' fatigue while completing the online questionnaire, yet the online questionnaire experienced a high number of outliers and invalid cases. A total of 459 cases were excluded from the general sample.

Third, despite being unable to collect low-cost carrier brand perceptions, it has already been illustrated that, amongst those for whom price is the most influential determinant attribute, other tangible products have little influence over their airline brand choice. This suggests that if the work is to be repeated, the questionnaire may need to specify a low-cost carrier brand chosen by the researcher.

Fourth, in order to overcome the high number of invalid and outlier cases, an alternative method would be to assess product importance by conducting a

correlational analysis examining the stated importance each respondent places on each airline product and service against their likeliness to recommend an airline brand. The outcome of the suggested correlational analysis would reveal the actual importance each respondent places on each airline product and service.

Fifth, the disadvantage of using a correlational analysis is that it would still collect generic importance scores on airline products and services. It may not provide an accurate reflection of airline product that influences choice. Future studies may adopt both determinant attribute and correlational analysis to assess product importance. The results from both analyses may reveal insights as to the advantages that each method provides. However, the number of invalid and outlier cases may be inevitable when a questionnaire contains a large number of variables.

Sixth, stepwise multiple discriminant analyses were conducted. The sample was divided into analysis and cross-validation samples. The prediction accuracy of the discriminant function was assessed on both samples. The validity was assessed using the k-fold method. This may have resulted in an over-fitting of the discriminant functions (Hair, 2010). In future research, the classification of cases using discriminant functions could be enhanced further by dividing the samples into analysis, cross-validation and hold-out samples. The use of the cross-validation sample meant that the discriminant function was essentially validated on the analysis sample. In contrast, the use of a hold-out sample ensures that the discriminant function is validated on a separate sample. Consequently, this will enhance the classification accuracy and the validity of the discriminant function.

6.7 Future research

This research used the statistical association of self-stated influencing factors as a very likely measure of characteristics that actually influence airline choice. The questionnaire collected cross-sectional data, rather than experimental data. The outcome of this is a subjective interpretation. Each analysis was accompanied by the decision rule that was applied. For example, while the principal components factor analysis was conducted, the reason for the using the Varimax rotation method was explained. This would enable other researchers to understand the reasons behind each conclusion.

The brand equity models proposed by Keller (1993) and Aaker (1996) both emphasise the importance of brand awareness. There are three methods of measuring brand awareness: top-of-mind, brand recognition, and unaided brand recall. The top-of-mind method was used in recording the awareness of airline brands in this research. The top-of-mind method is deemed to be suitable for the purpose of this research which emphasises how airline products and services can be used in airline brand messages in order to communicate more effectively to meet the needs of airline passengers. The use of the 'top-of-mind' method identified the airline brands that respondents could recall most easily.

The use of the top-of-mind method measured the depth of the airline brand awareness. The depth reflects the ease of being recalled. But the breadth shows the usage occasion of the brands. Airline brand value propositions are purchased and used as a mean to satisfy buyers' derived demand for air travel, i.e. wanting to be at their destination. This illustrates that airline brand awareness lacks breadth in comparison to non-airline brands that can be purchased to satisfy the needs of various usage situations.

Brand awareness was identified as one of the three factors that represent the structure of airline brand equity (see section 5.8.2.3). This factor contributed the least to the structure of airline brand equity, yet it is an integral component in establishing that equity. The lack of breadth in airline brand awareness means that the airline brand usage occasion is specific to flying situations. In contrast, when brand awareness is high in both breadth and depth, the brand

equity is transferable between the sectors in which the brand is applied. The Virgin Atlantic Airways brand was identified as an airline that adopted a compound branding strategy. This airline brand achieved high brand awareness scores (see section 5.7.1). The exploratory study using focus groups of business and leisure travellers suggest that the awareness of the Virgin Atlantic Airways is high on both breadth and the depth (see section 4.4.1). The brand is perceived as having the most modern fleet of aircraft (see section 5.13.). The Virgin Atlantic Airways brand illustrates that although airline brand awareness is lacking in breadth (or the usage of the brand), in comparison to brands in other sectors, the adoption of the compounding strategy enhances the brand visibility on both the breadth and the depth of airline brand awareness. The Virgin Atlantic Airways brand illustrates that although airline brands are highly similar in tangible products, a distinctive airline brand can be created by achieving high brand awareness in both breadth and depth dimensions.

Airline brand awareness was recorded using the top-of-mind method. This method captured only the depth of the brand. The use of a mixed method in this research on airline brand equity suggests that breadth of the brand is an important part of brand awareness, which in turn, is an integral component of establishing airline brand equity. Most importantly, the use of a mixed method demonstrates the crucial role of the intangible attributes in creating brand relationships.

Before a trip, the intangible cues such as national or cultural associations emphasised in airline advertisements play a crucial role in establishing brand awareness. During the trip, the intangible differentiations such as the Romance of Travel, and humorous and innovative themes used in the advertisements of the Singapore Airlines and Virgin Atlantic Airways brands, are important parts of creating intangible differentiations to airlines' tangible products. The emphasis on using airlines' executives, such as, Sir Richard Branson or the iconic Singapore Girls, increases the airline brands' presence and ensures that the brand is visible to airline passengers even after their air travel journey has ended. After the trip, the use of these iconic features in the airlines'

advertisements helps to remind airline passengers of each airline's unique brand value propositions. In contrast, the use of only a quantitative method would highlight only which tangible products and which elements of service the airline passengers are seeking. These insights may not be providing airlines with sufficient insights in order to create a distinctive brand.

This research investigated airline brand equity using the indirect method of a questionnaire. The comparison was only made between each type of airline brand. If the direct method is adopted in an experimental study using a conjoint analysis, this would enable comparisons to be made between full-service and low-cost carrier brands and other outcome measures such as price premiums and willingness to pay. Conjoint analysis can simultaneously cater for airline brands with different product attributes. This will allow optimal combinations of products to be identified as well as respondents being asked to evaluate the combinations of airline product attributes and the price that they are willing to pay. Brand awareness can also be recorded using other methods such as brand recognition and unaided brand recognition, to further establish the relationship between the brand recalled and the secondary associations drawn from each airline brand. This is an extension of what was conducted in the focus groups, where the respondents were asked to name any airline brands they could think of. This question was then followed by a probing question asking respondents to explain *'what they like the most about the mentioned brands*'. This would establish the relationship between the brands recalled and identify the secondary associations and meanings attached to those airline brands.

This research also highlights the role of frontline staff in providing good service. In order to implement the tactics suggested successfully, it may be necessary to conduct focus groups to gain an understanding of the barriers that airline employees face when serving customers. For example, it was identified that information support tools are among the most influential determinant attributes. Focus groups could be conducted amongst airport check-in staff to explore how customers respond to self-check-in machines and kiosks at airports, and how

staff can work alongside these facilities to deliver the airlines' intangible brand benefits. This will aid implementation when the brand strategies' suggestions are executed.

This research suggested that trip frequency may be influenced by other demographics attributes such as: household composition, total household income and overseas homeownership. These three demographic attributes were not included in this study. Consequently, if the work is to be repeated, the information related to these three attributes should also be collected to explore the association with trip frequency.

REFERENCES

Aaker, D. A. (1996), "Measuring brand equity across products and markets", *California management review,* Vol. 38, No. 3, p. 102-120.

Agarwal, M. K. and Rao, V. R. (1996), "An empirical comparison of consumer-based measures of brand equity", Vol. 7, No. 3, p. 237-247.

Air New Zealand (2012), available at: www.airnewzealand.co.nz (accessed February, 19th 2012).

Aksoy, S., Atilgan, E. and Akinci, S. (2003), "Airline services marketing by domestic and foreign firms: differences from the customers' viewpoint", *Journal of air transport management,* Vol. 9, No. 6, p. 343-351.

Alamdari, F. (1999), "Airline in-flight entertainment: the passengers' perspective", *Journal of air transport management,* Vol. 5, No. 4, p. 203-209.

American National Standard Institute (2012), available at: www.ansi.org (accessed February, 10th 2012).

Anderson, W. T. Jr. and Golden, L. L. (1984), "Bank promotion strategy", *Journal of advertising research,* Vol. 24, No. 2, p. 53-53.

Argenti, P. A. and Druckenmiller, B. (2004), "Reputation and the corporate brand", *Corporate reputation review,* Vol. 6, No. 4, p. 368-374.

Barrett, S. D. (2004a), "How do the demands for airport services differ between full-service carriers and low-cost carriers?", *Journal of air transport management,* Vol. 10, No. 1, p. 33-39.

Barrett, S. D. (2004b), "The sustainability of the Ryanair model", *International journal of transport management,* Vol. 2, No. 2, p. 89-98.

Bazeley, P. (forthcoming), *Qualitative Data Analysis,* (2nd ed), Sage Publications, London

Berry, L. L. and Seltman, K. D. (2007), "Building a strong services brand: lessons from Mayo Clinic", *Business horizons,* Vol. 50, No. 3, p. 199-209.

Blackman, N. J. and Koval, J. J. (2000), "Interval estimation for Cohen's kappa as a measure of agreement", *Statistics in medicine,* Vol. 19, No. 5, p. 723-741.

Blackston, M. (1995), "The qualitative dimension of brand equity", *Journal of advertising research,* Vol. 35, No. 4, p.RC1-RC7.

Bojamic, D. C. and Calantone, R. J. (1990), "A contribution approach to price bundling in tourism", *Annals of tourism research,* Vol. 17, No. 4, p. 528-540.

Bruning, E. (1997), "Country of origin, national loyalty and product choice: The case of international air travel", *International marketing review,* Vol. 14, No. 1, p.59-74.

Choi, T. Y. and Chu, R. (2001), "Determinants of hotel guests' satisfaction and repeat patronage in the Hong Kong hotel industry", *International Journal of Hospitality Management,* Vol. 20, No. 3, p. 277-297.

Chong, M. (2007), "The Role of Internal Communication and Training in Infusing Corporate Values and Delivering Brand Promise: Singapore Airlines' Experience", *Corporate Reputation Review,* Vol. 10, No. 3, p. 201-212.

Civil Aviation Authority (2008)*, Recent trends in growth of UK air passenger demand,*available at www.caa.co.uk/docs/589/erg_recent_trends_final_v2.pdf. (accessed February 29th 2012).

Civil Aviation Authority (2009)*, Business travellers tighten their belts*, available at: http://www.caa.co.uk/application.aspx?catid=14&pagetype=65&appid=7&newstype=n&mode=detail&nid=1739 (accessed February 29 2012).

Civil Aviation Authority (2010), *Passengers by type and nationality of operator 2010,* available at: http://www.caa.co.uk/default.aspx?catid=80&pagetype=88&sglid=3&fld=2010Annual. (accessed February 29th 2012)

Clarke, J. (2000), "Tourism brands: An exploratory study of the brands box model", *Journal of vacation marketing,* Vol. 6, No. 4, p. 329-345.

Cobb-Walgren, C. J., Ruble, C. A. and Donthu, N. (1995), "Brand equity, brand preference, and purchase intent", *Journal of advertising,* Vol. 24, No. 3, p. 25-40.

Creswell, J. W. (2007), *Designing and conducting mixed methods research,* Sage, Thousand Oaks, CA.

Czaja, R. and Blair, J. (2005), *Designing surveys: a guide to decisions and procedures,* (2nd ed), Pine Forge Press, Thousand Oaks, CA.

Dana, L. and Vignali, D. (1999), "British Airways PLC", *International marketing review,* Vol. 16, No. 4, p. 278-291.

de Chernatony, L. (1993), "Categorizing brands: evolutionary processes underpinned by two key dimensions", *Journal of marketing management,* Vol. 9, No. 2, p. 173-188.

de Chernatony, L. and Segal-Horn, S. (2003), "The criteria for successful services brands", *European journal of marketing,* Vol. 37, No. 7/8, p. 1095-1118.

Denton, N. and Dennis, N. (2000), "Airline franchising in Europe: benefits and disbenefits to airlines and consumers", *Journal of air transport Management,* Vol. 6, No. 4, p. 179-190.

Docters, R., Schefers, B., Durman, C. and Gieskes, M. (2006), "Bundles with sharp teeth: effective product combinations", *The journal of business strategy,* Vol. 27, No. 5, p. 10-16.

Dresner, M. (2006), "Leisure versus business passengers: similarities, differences, and implications", *Journal of air transport management,* Vol. 12, No. 1, p. 28-32.

Driver, J. C. (1999), "Developments in airline marketing practice", *Journal of marketing practice,* Vol. 5, No. 5, p. 134-150.

Dumazel, R. and Humphreys, I. (1999), "Travel agent monitoring and management", *Journal of air transport management,* Vol. 5, No. 2, p. 63-72.

Dunning-Mitchell, L. and Cox, M. (2010), "TOP AIRLINE GROUPS BY REVENUE", *Airline business,* Vol. 26, No. 8, p. 56-62.

Farquhar, P. H. (1989), "Managing brand equity", *Marketing research,* Vol. 1, No. 3, p. 24-33.

Field, A. (2009), *Discovering statistics using SPSS: (and sex and drugs and rock 'n' roll),* (3rd ed), Sage, Los Angeles; London.

Forsyth, P. (2003), "Low-cost carriers in Australia: experiences and impacts", *Journal of air transport management,* Vol. 9, No. 5, p. 277-284.

Fourie, C. and Lubbe, B. (2006), "Determinants of selection of full-service airlines and low-cost carriers—A note on business travellers in South Africa", *Journal of air transport management,* Vol. 12, No. 2, p. 98-102.

Franke, M. (2004), "Competition between network carriers and low-cost carriers—retreat battle or breakthrough to a new level of efficiency?", *Journal of air transport management,* Vol. 10, No. 1, p. 15-21.

Franke, M. (2007), "Innovation: the winning formula to regain profitability in aviation?", *Journal of air transport management,* Vol. 13, No. 1, p. 23-30.

Gillen, D. and Lall, A. (2004), "Competitive advantage of low-cost carriers: some implications for airports", *Journal of air transport management,* Vol. 10, No. 1, p. 41-50.

Gillen, D. and Morrison, W. (2003), "Bundling, integration and the delivered price of air travel: are low cost carriers full service competitors?", *Journal of air transport management,* Vol. 9, No. 1, p. 15-23.

Gladden, J. M., Milne, G. R. and Sutton, W. A. (1998), "A conceptual framework for assessing brand equity in Division I college athletics", *Journal of sport management,* Vol. 12, No. 1, p. 1-19.

Graf, L. (2005), "Incompatibilities of the low-cost and network carrier business models within the same airline grouping", *Journal of air transport management,* Vol. 11, No. 5, p. 313-327.

Graham, A. (2006), "Have the major forces driving leisure airline traffic changed?", *Journal of air transport management,* Vol. 12, No. 1, p. 14-20.

Guiltinan, J. P. (1987), "The price bundling of services: a normative framework", *Journal of marketing,* Vol. 51, No. 2, p. 74-85.

Gustafsson, A., Ekdahl, F. and Edvardsson, B. (1999), "Customer focused service development in practice - a case study at Scandinavian Airlines System (SAS)", *Journal of service management,* Vol. 10, No. 4, p. 344-358.

Hahn, C. (2008), *Doing qualitative research using your computer: a practical guide,* Sage, Los Angeles.

Hair, J. F. (2010), *Multivariate data analysis,* (7th ed), Prentice Hall, Upper Saddle River, NJ.

Harlam, B. A., Krishna, A., Lehmann, D. R. and Mela, C. (1995), "Impact of bundle type, price framing and familiarity on purchase intention for the bundle", *Journal of business research,* Vol. 33, No. 1, p. 57-66.

Harris, G. (2002), "Brand strategy in the retail banking sector: adapting to the financial services revolution", *Journal of brand management,* Vol. 9, No. 6, p. 430-436.

Hätty, H. and Hollmeier, S. (2003), "Airline strategy in the 2001/2002 crisis—the Lufthansa example", *Journal of air transport management,* Vol. 9, No. 1, p. 51-55.

Heracleous, L. T., Wirtz, J. and Pangarkar, N. (2009), *Flying high in a competitive industry: secrets of the world's leading airline,* (Rev ed), McGraw-Hill, Singapore.

Heracleous, L. and Wirtz, J. (2009), "Strategy and organization at Singapore Airlines: achieving sustainable advantage through dual strategy", *Journal of air transport management,* Vol. 15, No. 6, p. 274-279.

Herrmann, A., Huber, F. and Coulter, R. H. (1997), "Product and service bundling decisions and their effects on purchase intention", *Pricing strategy & practice,* Vol. 5, No. 3, p. 99-107.

Hooley, G. and Greenley, G. (2005), "The resource underpinnings of competitive positions", *Journal of strategic marketing,* Vol. 13, No. 2, p. 93-116.

Huang, W. and Kuai, L. (2006), "The in-flight shopper", *Journal of air transport management,* Vol. 12, No. 4, p. 207-211.

Kalligiannis, K., Iatrou, K. and Mason, K. (2006), "How do airlines perceive that strategic alliances affect their individual branding?", *Journal of air transportation,* Vol. 11, No. 2, p. 3-21.

Kay, M. J. (2006), "Strong brands and corporate brands", *European journal of marketing,* Vol. 40, No. 7/8, p. 742-760.

Kayaman, R. and Arasli, H. (2007), "Customer based brand equity: evidence from the hotel industry", *Managing service quality,* Vol. 17, No. 1, p. 92-109.

Keegan, S. (2009), *Qualitative research: good decision making through understanding people, cultures and markets,* Kogan Page, London.

Keller, K. L. (1993), "Conceptualizing, measuring, and managing customer-based brand equity", *Journal of marketing,* Vol. 57, No. 1, p. 1-22.

Keller, K. L. (2001), "Building customer-based brand equity", *Marketing management,* Vol. 10, No. 2, p. 14-19.

Keynote (2010), *Airlines Market Report 2010,*available at: www.keynote.co.uk. (accessed 20th January 2012)

Kim, H. and Kim, W. G. (2005), "The relationship between brand equity and firms' performance in luxury hotels and chain restaurants", *Tourism management,* Vol. 26, No. 4, p. 549-560.

Kim, J. and Mueller, C. W. (1978), *Introduction to factor analysis: what it is and how to do it,* Sage, Beverly Hills; London.

Klaus, P. and Maklan, S. (2007), "The role of brands in a service-dominated world", *Journal of brand management,* Vol. 15, No. 2, p. 115-122.

Kotler, P. and Keller, K. L. (2005), *Marketing management,* (12th ed), Pearson Prentice Hall, New Jersey.

Krueger, R. A. and Casey, M. A. (2009), *Focus groups: a practical guide for applied research,* (4th ed), Sage Publications, Thousand Oaks, CA.

Lassar, W., Mittal, B. and Sharma, A. (1995), "Measuring customer-based brand equity", *The journal of consumer marketing,* Vol. 12, No. 4, p. 11-19.

Lawton, T. C. and Solomko, S. (2005), "When being the lowest cost is not enough: building a successful low-fare airline business model in Asia", *Journal of air transport management,* Vol. 11, No. 6, p. 355-362.

Lehmann, D. R., Keller, K. L. and Farley, J. U. (2008), "The structure of survey-based brand metrics", *Journal of international marketing,* Vol. 16, No. 4, p. 29-56.

Lindstädt, H. and Fauser, B. (2004), "Separation or integration? can network carriers create distinct business streams on one integrated production platform?", *Journal of air transport management,* Vol. 10, No. 1, p. 23-31.

Mason, K. J. (2000), "The propensity of business travellers to use low cost airlines", *Journal of transport geography,* Vol. 8, No. 2, p. 107-119.

Mason, K. J. (2001), "Marketing low-cost airline services to business travellers", *Journal of air transport management,* Vol. 7, No. 2, p. 103-109.

Mason, K. J. and Gray, R. (1995), "Short haul business travel in the European Union: a segmentation profile", *Journal of air transport management,* Vol. 2, No. 3-4, p. 197-205.

Mason, K. J. and Morrison, W. G. (2008), "Towards a mean of consistently comparing airline business models and application to the Low Cost Airline sector", *Research in transport economics,* Vol.24, No. 1, p.75-84

Mendenhall, W. (2003), *A second course in statistics: regression analysis,* (6th ed), Pearson Education, London.

Morgan, D. L. (1997), *Focus groups as qualitative research,* (2nd ed), Sage Publications, Thousand Oaks, CA.

Morrell, P. (2005), "Airlines within airlines: an analysis of US network airline responses to low cost carriers", *Journal of air transport management,* Vol. 11, No. 5, p. 303-312.

Morrison, S. and Crane, F. G. (2007), "Building the service brand by creating and managing an emotional brand experience", *Journal of brand management,* Vol. 14, No. 5, p. 410-421.

Ng, I. C. L., Wirtz, J. and Lee, K. S. (1999), "The strategic role of unused service capacity", *International journal of service industry management,* Vol. 10, No. 2, p. 211-244.

O'Connell, J. F. and Williams, G. (2005), "Passengers' perceptions of low cost airlines and full service carriers: a case study involving Ryanair, Aer Lingus, Air Asia and Malaysia Airlines", *Journal of air transport management,* Vol. 11, No. 4, p. 259-272.

Prasad, K. and Dev, C. S. (2000), "Managing hotel brand equity: a customer-centric framework for assessing performance", *Cornell hotel and restaurant administration quarterly,* Vol. 41, No. 3, p. 22-31.

Reals, K., (2011), *Korean Air set to be first with flying duty-free shop*, Reed Business Information UK, London.

Richards, L. (2009), *Handling qualitative data: a practical guide,* (2nd ed), Sage, London.

Ritchie, J. and Lewis, J. (2003), *Qualitative research practice: a guide for social science students and researchers,* Sage, London; Thousand Oaks, CA.

Robson (2002), *Real world research: a resource for social scientists and practitioner-researchers,* (2nd ed), Blackwell, Oxford.

Shaw, S. (2004), *Airline marketing and management,* (5th ed), Gower, Aldershot.

Shaw, S. (2007), *Airline marketing and management,* (6th ed), Ashgate, Burlington, VT.

Simonin, B. L. and Ruth, J. A. (1995), "Bundling as a strategy for new product introduction: effects on consumers' reservation prices for the bundle, the new product, and its tie-in", *Journal of business research,* Vol. 33, No. 3, p. 219-230.

Sinclair, S. A. and Stalling, E. C. (1990), "How to identify differences between market segments with attribute analysis", *Industrial marketing management,* Vol. 19, No. 1, p. 31-40.

Spector, P. E. (1992), *Summated rating scale construction: introduction,* Sage, CA.

Stremersch, S. and Tellis, G. J. (2002), "Strategic bundling of products and prices: a new synthesis for marketing", *Journal of marketing,* Vol. 66, No. 1, p. 55-72.

Tabachnick, B. G. and Fidell, L. S. (1996), *Using multivariate statistics,* (3rd ed), HarperCollins, New York.

The Parliamentary Office of Science and Technology (POST) (2000), *Statistical information on air passengers numbers and characteristics: collected for the House of Lords, Science and Technology committee inquiry into the Air Cabin Environment,* available at:www.parliament.uk/post/e3.pdf. (accessed January 29th 2012).

Tsantoulis, M. and Palmer, A. (2008), "Quality convergence in airline co-brand alliances", *Managing service quality,* Vol. 18, No. 1, p. 34-64.

Vowles, T. M. (2001), "The “Southwest effect” in multi-airport regions", *Journal of air transport management,* Vol. 7, No. 4, p. 251-258.

Westwood, S., Pritchard, A. and Morgan, N. J. (2000), "Gender-blind marketing: businesswomen's perceptions of airline services", *Tourism management,* Vol. 21, No. 4, p. 353-362.

Williams, G. (2001), "Will Europe's charter carriers be replaced by “no-frills” scheduled airlines?", *Journal of air transport management,* Vol. 7, No. 5, p. 277-286.

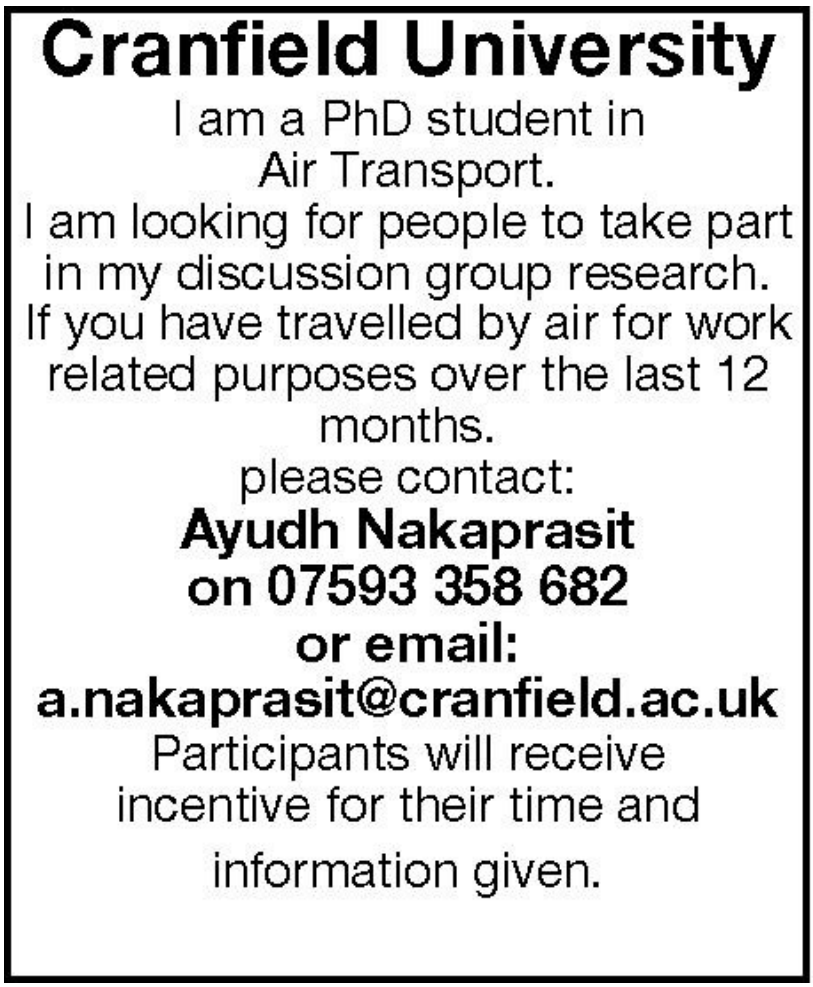
Wirtz, J., Heracleous, L. and Pangarkar, N. (2008), "Managing human resources for service excellence and cost effectiveness at Singapore Airlines", *Managing service quality,* Vol. 18, No. 1, p. 4-19.

Zar, J. H. (1999), *Biostatistical analysis,* (4th ed), Prentice Hall, New Jersey.

APPENDICES

Appendix A **Recruitment notice**

A.1 Recruitment Notice



Cranfield University

I am a PhD student in Air Transport.
I am looking for people to take part in my discussion group research.
If you have flown on budget airlines (like Ryanair, Easyjet) and Full Service Carriers (like British Airways), please contact:

Ayudh Nakaprasit
on 07593 358 682
or email:
a.nakaprasit@cranfield.ac.uk

Participants will receive incentive for their time and information given.

Cranfield UNIVERSITY

Appendix B **Consent form**

PARTICIPANT CONSENT FORM

Please tick each box to confirm that you have read and understood each section of the form:

I, _____ (please print your name in block capitals) confirm that I have volunteered to participate in the project by taking part in a workshop discussion as described to me. ☐

I understand that the discussions will be audio recorded and transcribed for analysis. The analysis will be only used to develop operational procedures and for no other purposes. Any results submitted within the final report to the client will not be available to me for commercial reasons. ☐

I understand that the audio recordings and transcriptions will be stored at Cranfield University in accordance with the Data Protection Act (1998). ☐

I understand that my confidentiality and anonymity are assured as all personal information that I provide will be treated with the strictest confidence. It will not be possible to identify any specific individual from the final report produced for the client. ☐

I undertake to respect the confidentiality of the others partaking in the workshops by not discussing comments made outside of the room. ☐

I understand that I am free to withdraw from project at any stage simply by informing a member of the research team. I also understand that, as the data is anonymous, it will not be possible to withdraw my data from the research once my contributions have been transcribed. ☐

If you have any questions about the research, please do not hesitate to ask.

I confirm I have read and completely and fully understand the information provided on this form and therefore give my consent to taking part in this research.

Signature: _____ Date: _____

Full name: _____ Contact number: _____

Address: _____ Email address: _____

Appendix C **Focus group material**

C.1 Discussion guide

Part I: Introduction

The moderator explains the aim of the focus group discussion to the participants.

- The focus group is conducted as part of the moderator's PhD research at the Department of Air Transport, Cranfield University.
- Duration of the focus group: 90 – 120 minutes.
- Ask each participant to sign ethical clearance document.
- Ask each participant for permission to record to the focus group discussion.
- Emphasise that participation in the focus group is voluntary.
- Incentives will be given at the end of the focus group discussion.

Part II: Brand recall exercise

1. Please name any airlines that you are aware of.
2. 'Please name any: Full Service Carriers (FSC) or Low Cost Carriers (LCC) that you are aware of'
   Moderator's note:
   - Do not explain if participants ask what Full Service Carriers and Low Cost Carriers mean.
     - ⇨ Probe amongst the participants: 'Can somebody help me explain?'
     - ⇨ Moderator record full service carriers brand that were recalled on Flipchart 1 and low cost carriers brand on Flipchart 2
3. 'Now please tell me – which other non-airline brands, can you think of? - any brands at all.'
   Moderator's note:
   - ⇨ Moderator record non-airline brands on Flipchart 3
4. 'How about brands – any brands in the financial sector?'
   Moderator's note:
   - ⇨ Moderator record non-airline brands on Flipchart 4
   - ⇨

Part III: Exploring brands' secondary associations

1. 'What do you like the most about these airline brands?' – Moderator will point to Flipchart 1, then Flipchart 2

2. ‘What do you like about these non-airline brands?’ – Moderator will point to Flipchart 3

3. ‘What do you like and dislike about these brands from the financial sector? – Moderator will point ……..?

Examples of possible probing questions:

- ‘What do you like the most about these airlines?’
- ‘What is so unique about these airlines?’
- ‘Can you give me an example?’
- ‘How important is X?’
- ‘How different are they?’
- ‘What is so unique about these brands?’
- Individual mind map exercise

Individual Mind map exercise

Moderator’s instructions:

‘I want each of you to look at the mind map in the folder in front of you. Without talking to each other, I would like you to jot down as many words as you can think of that you can associate with ‘British Airways’ and ‘Barclays’ - whether these are good, bad. Whether or not you have travelled with British Airways or are a customer of Barclays – anything that comes to your mind. Please write this down on each sheet of paper. If you want – please use lines to show how all the words connect.’

⇨ After 5 minutes – the moderator asks participants to share what is recorded on each sheet

Possible probing questions

- ‘How are British Airways and Barclays similar?’
- ‘What about their products and services? ‘
- ‘How good are their products and services? If you have not travelled with British Airways or are not a customer of Barclays - what have you heard about them that is good (or bad)?’

- ‘What is unique about them? – (British Airways and Barclays).’

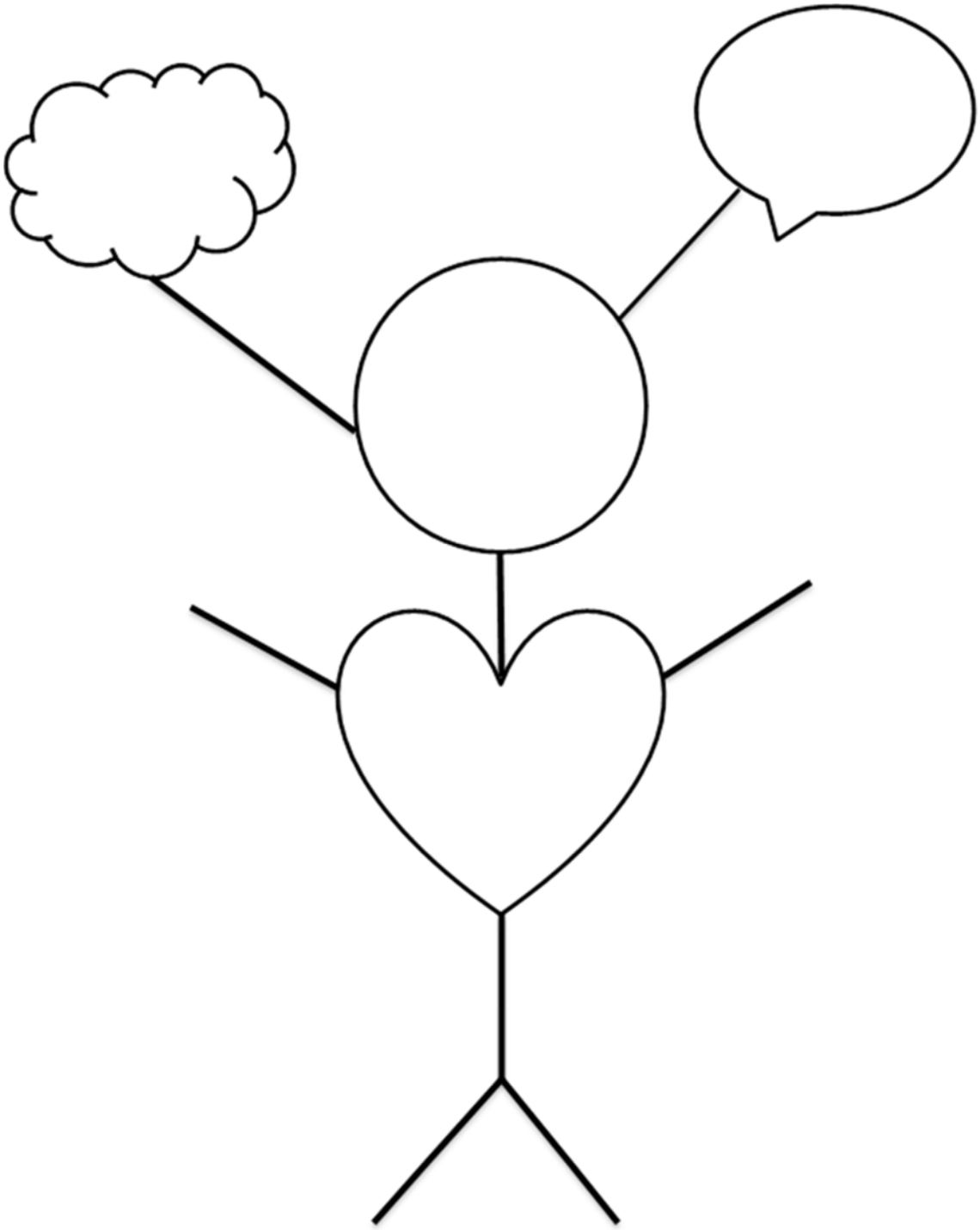
Part IV: Exploring deeply held brand secondary associations

- Start with their face, and hair, are they male or female?
- What clothes would they be wearing?
- Any accessories?
- What would they be carrying in their hands on a typical trip to the store? What occupation would they have?
- How old?
- What magazine would they read?
- Explain the: ‘Speech bubble’, ‘Thought bubble’, and ‘heart bubble’.
- Speech bubble:
- ‘When ‘British Airways’ or ‘Barclays (person) is sitting on the plane, what are they saying to his or her seat mate?
- Thought bubble:
- ‘What would they be thinking that they wouldn’t’ say aloud?’
- Heart bubble:
- What are they really feeling deep inside that didn’t come up in their speech or thoughts?

C.2 Mind maps


BRITISH
AIRWAYS

C.3 Figure-drawing exercise



Appendix D **Questionnaire used in pre-testing exercise**

I am a PhD student at Cranfield University. I am currently conducting a doctoral study on Airline brands. I am interested in learning about your views towards airlines.

The responses given in this questionnaire will only be used for the purpose of my doctoral study. Responses are anonymous. The information you provided are confidential.

This should take about 10 minutes of your time.

Your participation and information is an invaluable part of my study.

Question 1

Thinking about your most recent flight, did you choose the airlines yourself

Yes

No

Question 2

Please name any five airlines that spring to your mind

1.
2.
3.
4.
5.

Question 3

Please name up to five full service airlines that spring to your mind

1.
2.
3.
4.
5.

Question 4

What is your most preferred airline to fly with?

_____

Question 5

In the next 12 months, for your trip, given the opportunity to fly with your preferred airline, how likely are you to fly with this airline

1. Definitely will fly
2. Probably will fly
3. May or may not fly
4. Probably will not fly
5. Definitely will not fly

Question 6

Thinking specifically about your most recent flight, which cabin or class or service were you in?

1. First Class
2. Business Class
3. Premium Economy Class
4. Economy Class

Question 7

Now I am interested in your views, on some characteristics and attributes related to your most preferred airline mentioned in Question 4.

Thinking specifically about your most preferred airline, please indicate your level of agreement with each of the following statement, on a scale of 1 to 5, where 1 is strongly agree, and 5 is strongly disagree.

	Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree

21 airline brand perception measures

1. I see a lot of advertisements and information about the brand
2. I understand what this brand is trying to tell me
3. This brand stands out from its competitors
4. I hold this brand in high regard
5. This brand lives up to its promises
6. This brand offers clear advantage vs the competition
7. I am strongly committed to this brand
8. I can count on this brand
9. This brand is innovative
10. This brand cares about its customers
11. I have happy memories with this brand
12. I can never go wrong selecting this brand
13. I would recommend this brand highly
14. This brand consistently satisfies me
15. If a problem with this brand's service arose, the company would quickly fix it
16. I would pay extra for this brand
17. I plan to buy this brand in the future
18. This brand represents excellent value for money

19. When I think of this brand, I have positive thoughts
20. I would forgive this brand if occasionally, the product seem substandard
21. I talk about this brand with my friends

Question 8

Now I would like to obtain your views about your most preferred airline,

Please indicate how important each item about airline service on a scale of 1 to 5. Where 1 is least important and five is most important

	Not at all important	Unimportant	Neither important or important	Somewhat important	Most important
Airline products and service items					

1. Frequent flights to destinations
2. Convenient Flight schedules
3. Availability of nonstop flights
4. On time departures and arrivals
5. On time baggage delivery upon arrival
6. Priority reservation line
7. Advance seat selection
8. Frequent Flyer programme benefits
9. Phone check in
10. Internet check in
11. Priority bag drop
12. Priority bag tag
13. Exclusive check in desks
14. Priority boarding
15. Exclusive airport lounges
16. Pre-flight drink
17. Up to date aircraft and inflight facility
18. Personal on-board entertainment
19. Seat pitch
20. Meal service
21. Amenity kit
22. Complimentary newspapers
23. Cabin crew's credibility

24. Physical appearance of cabin crew
25. Close attention by cabin crew
26. Cabin crew's ability to answer questions
27. Neat appearance of employees
28. Employees who are willing to help
29. Courtesy of employees
30. Employees who have the knowledge to answer questions when things go wrong
31. Sincere interests in solving problems
32. Adequacy of information on airline's websites
33. Ticket purchase opportunity via the internet
34. Availability of airline website on the internet
35. Priority deplaning
36. Fast track immigration upon arrival
37. Priority bag delivery
38. Arrival lounge

Question 9

In the past 12 months, as your best guess, how many return trips have you taken?

1. None
2. 1 – 2 trips
3. 3 – 5 trips
4. 6 – 10 trips
5. 11 – 15 trips
6. 16 – 20 trips
7. 21 – 25 trips
8. 26 – 30 trips
9. 31 – 35 trips
10. 40 or more trips

Question 10

In the past 12 months, how many return trips did you take for business purposes?

1. None
2. 1 – 2 trips
3. 3 – 5 trips
4. 6 – 10 trips
5. 11 – 15 trips
6. 16 – 20 trips
7. 21 – 25 trips
8. 26 – 30 trips
9. 31 – 35 trips
10. 40 or more trips

Question 11

In the last 12 months, thinking about when you fly for business purposes, as your best guess, how many trips were for the following reasons?

	None	1 – 2 trips	3 – 5 trips	6 - 10 trips	11 – 15 trips	16 – 20 trips	21 – 25 trips	26 – 30 trips	31 – 35 trips	40 or more trips
Meeting										
Conference										
Training										
Trade fair										
Employment										
Other										

Question 12

As your best guess, for flights you have taken, not related to work, how many return trips did you take for the following reasons?

	None	1 – 2 trips	3 – 5 trips	6 - 10 trips	11 – 15 trips	16 – 20 trips	21 – 25 trips	26 – 30 trips	31 – 35 trips	40 or more trips
Sports										
Shopping										
Visiting friends and relatives										
Weekend break										
Holiday										
Cultural and religious										
Study										

Question 13

In the last 12 months, as your best guess, how many long haul trips (those with flight time of four or more) did you take?

1. None
2. 1 – 2 trips
3. 3 – 5 trips
4. 6 – 10 trips
5. 11 – 15 trips
6. 16 – 20 trips
7. 21 – 25 trips
8. 26 – 30 trips
9. 31 – 35 trips
10. 40 or more trips

Question 14

How many employees work for your organisation?

1. Self-employed
2. 1 – 24 employees
3. 25 – 99 employees
4. 100 – 999 employees
5. 1000 – 4000 employees
6. 5000 and more employees
7. Do not know

Question 15

I am not interested in learning about your travel policy at your organisation.

Please indicate which ONE of the following options, best describe your organisation's travel arrangements

1. Does not have Travel Manager or Travel Department
2. Has either Travel Manager or Travel Department
3. Has both Travel Manager and Travel Department
4. Do not know

Question 16

Does your organisation have a corporate travel policy?

1. Yes
2. No
3. Don't know

Question 17

Thinking about the last 12 months, please indicate which ONE of the following, did you use most often when booking your flights?

1. Self
2. Secretary/Personal Assistant (PA)
3. Travel Management company
4. Travel Department
5. Friends or relatives

Question 18

Thinking about the most recent flight, which of the following reservation channel did you use?

1. Online travel agent
2. Airline website
3. Travel Management company websites
4. Travel Management company by email or phone
5. Other search engines
6. Corporate internet and self-booking tool
7. Airline telephone sales

Question 19

What is your age?

1. Less than 18
2. 18 – 26
3. 27 – 35
4. 36 – 44
5. 45 – 53
6. 54 – 62
7. 63+

Question 20

What is your gender?

1. Male
2. Female

Question 21

Do you have any other comments or suggestions you would like to add? Please write them in the space provided below

Thank you very much for your time in completing this questionnaire. Your time and information is greatly appreciated.

Appendix E **Correlation matrix for the content validity assessment of airline brand perception measures**

See next page

Correlations

		summated_branding	Q7.1 I see a lot of advertisements about	Q7.2 I understand what ___ is trying to tell me:	Q7.3 ___ stands out from its competitors:	Q7.4 I hold ___ in high regard:	Q7.5___lives up to its promises:	Q7.6 ___ offers clear advantage vs the competition:	Q7.7 I am strongly committed to fly with___	Q7.8 I can count on ___	Q7.9 ___ is innovative:	Q7.10___ cares about its customers:	Q7.11 I have happy memories of flying with ___	Q7.12 I can never go wrong flying with ___	Q7.13 I would recommend flying with ___	Q7.14 ___ consistently satisfies me:	Q7.15 If a problem with___'s service arose,	Q7.16 I would pay extra to fly ___	Q7.17 I plan to fly ___ in the	Q7.18 Flying with ___ represents excellent value for money:	Q7.19 When I think of flying with ___ I have positive thoughts:	Q7.20 I would forgive ___ if occasionally the product seemed sub-standard:	Q7.21 I talk about___ with my friends:
summated_branding	Pearson Correlation	1	.481**	.572**	.702**	.820**	.838**	.753**	.699**	.770**	.632**	.752**	.785**	.744**	.820**	.829**	.691**	.638**	.751**	.783**	.894**	.538**	.729**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	77	72	72	72	72	69	70	70	70	69	68	69	69	69	69	69	69	69	68	69	69	69
Q7.1 I see a lot of advertisements about	Pearson Correlation	.481**	1	.641**	.460**	.455**	.368**	.382**	.332**	.504**	.294*	.525**	.392**	.349**	.277*	.377**	.405**	.340**	.437**	.359**	.506**	.168	.340**
	Sig. (2-tailed)	.000		.000	.000	.000	.002	.001	.005	.000	.014	.000	.001	.003	.021	.001	.001	.004	.000	.003	.000	.168	.004
	N	72	72	72	72	72	69	70	70	70	69	68	69	69	69	69	69	69	69	68	69	69	69
Q7.2 I understand what ___ is trying to tell me:	Pearson Correlation	.572**	.641**	1	.719**	.620**	.584**	.610**	.418**	.638**	.443**	.428**	.364**	.353**	.403**	.394**	.539**	.284*	.509**	.611**	.649**	.289*	.451**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.002	.003	.001	.001	.000	.018	.000	.000	.000	.016	.000
	N	72	72	72	72	72	69	70	70	70	69	68	69	69	69	69	69	69	69	68	69	69	69
Q7.3 ___ stands out from its competitors:	Pearson Correlation	.702**	.460**	.719**	1	.805**	.707**	.752**	.542**	.679**	.667**	.539**	.563**	.476**	.626**	.614**	.509**	.447**	.534**	.640**	.748**	.335**	.595**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.005	.000
	N	72	72	72	72	72	69	70	70	70	69	68	69	69	69	69	69	69	69	68	69	69	69
Q7.4 I hold ___ in high regard:	Pearson Correlation	.820**	.455**	.620**	.805**	1	.804**	.708**	.609**	.725**	.647**	.619**	.637**	.509**	.700**	.672**	.567**	.461**	.664**	.660**	.860**	.421**	.557**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	72	72	72	72	72	69	70	70	70	69	68	69	69	69	69	69	69	69	68	69	69	69
Q7.5___lives up to its promises:	Pearson Correlation	.838**	.368**	.584**	.707**	.804**	1	.793**	.610**	.757**	.476**	.543**	.595**	.512**	.686**	.716**	.546**	.465**	.607**	.702**	.800**	.477**	.525**
	Sig. (2-tailed)	.000	.002	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	69	69	69	69	69	69	69	69	69	69	68	69	69	69	69	69	69	69	68	69	69	69
Q7.6 ___ offers clear advantage vs the competition:	Pearson Correlation	.753**	.382**	.610**	.752**	.708**	.793**	1	.674**	.679**	.495**	.435**	.484**	.512**	.547**	.594**	.504**	.500**	.531**	.672**	.686**	.289*	.629**
	Sig. (2-tailed)	.000	.001	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.016	.000
	N	70	70	70	70	70	69	70	70	69	69	68	69	69	69	69	69	69	69	68	69	69	69
Q7.7 I am strongly committed to fly with___	Pearson Correlation	.699**	.332**	.418**	.542**	.609**	.610**	.674**	1	.704**	.366**	.383**	.546**	.485**	.545**	.558**	.421**	.501**	.671**	.599**	.514**	.296*	.692**
	Sig. (2-tailed)	.000	.005	.000	.000	.000	.000	.000		.000	.002	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.013	.000
	N	70	70	70	70	70	69	70	70	69	69	68	69	69	69	69	69	69	69	68	69	69	69
Q7.8 I can count on ___	Pearson Correlation	.770**	.504**	.638**	.679**	.725**	.757**	.679**	.704**	1	.610**	.693**	.679**	.667**	.692**	.671**	.615**	.510**	.634**	.671**	.775**	.424**	.579**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	70	70	70	70	70	69	69	69	70	69	68	69	69	69	69	69	69	69	68	69	69	69
Q7.9 ___ is innovative:	Pearson Correlation	.632**	.294*	.443**	.667**	.647**	.476**	.495**	.366**	.610**	1	.574**	.449**	.408**	.546**	.382**	.419**	.227*	.311**	.523**	.658**	.172	.350**
	Sig. (2-tailed)	.000	.014	.000	.000	.000	.000	.000	.002	.000		.000	.000	.001	.000	.001	.000	.060	.009	.000	.000	.157	.003
	N	69	69	69	69	69	69	69	69	69	69	68	69	69	69	69	69	69	69	68	69	69	69
Q7.10___ cares about its customers:	Pearson Correlation	.752**	.525**	.428**	.539**	.619**	.543**	.435**	.383**	.693**	.574**	1	.696**	.725**	.623**	.686**	.724**	.520**	.395**	.461**	.696**	.302*	.367**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.001	.000	.000		.000	.000	.000	.000	.000	.000	.001	.000	.000	.012	.002
	N	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	68
Q7.11 I have happy memories of flying with ___	Pearson Correlation	.785**	.392**	.364**	.563**	.637**	.595**	.484**	.546**	.679**	.449**	.696**	1	.777**	.793**	.841**	.518**	.448**	.537**	.497**	.671**	.393**	.514**
	Sig. (2-tailed)	.000	.001	.002	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.001	.000
	N	69	69	69	69	69	69	69	69	69	69	68	69	69	69	69	69	69	69	68	69	69	69
Q7.12 I can never go wrong flying with ___	Pearson Correlation	.744**	.349**	.353**	.476**	.509**	.512**	.512**	.485**	.667**	.408**	.725**	.777**	1	.714**	.787**	.603**	.598**	.412**	.456**	.624**	.331**	.451**
	Sig. (2-tailed)	.000	.003	.003	.000	.000	.000	.000	.000	.000	.001	.000	.000		.000	.000	.000	.000	.000	.000	.000	.005	.000
	N	69	69	69	69	69	69	69	69	69	69	68	69	69	69	69	69	69	69	68	69	69	69
Q7.13 I would recommend flying with ___	Pearson Correlation	.820**	.277*	.403**	.626**	.700**	.686**	.547**	.545**	.692**	.546**	.623**	.793**	.714**	1	.849**	.502**	.437**	.562**	.645**	.765**	.504**	.515**
	Sig. (2-tailed)	.000	.021	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000
	N	69	69	69	69	69	69	69	69	69	69	68	69	69	69	69	69	69	69	68	69	69	69
Q7.14 ___ consistently satisfies me:	Pearson Correlation	.829**	.377**	.394**	.614**	.672**	.716**	.594**	.558**	.671**	.382**	.686**	.841**	.787**	.849**	1	.588**	.517**	.556**	.577**	.742**	.454**	.547**
	Sig. (2-tailed)	.000	.001	.001	.000	.000	.000	.000	.000	.000	.001	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000
	N	69	69	69	69	69	69	69	69	69	69	68	69	69	69	69	69	69	69	68	69	69	69
Q7.15 If a problem with___'s service arose,	Pearson Correlation	.691**	.405**	.539**	.509**	.567**	.546**	.504**	.421**	.615**	.419**	.724**	.518**	.603**	.502**	.588**	1	.447**	.410**	.400**	.620**	.257*	.390**
	Sig. (2-tailed)	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.001	.000	.033	.001
	N	69	69	69	69	69	69	69	69	69	69	68	69	69	69	69	69	69	69	68	69	69	69
Q7.16 I would pay extra to fly ___	Pearson Correlation	.638**	.340**	.284*	.447**	.461**	.465**	.500**	.501**	.510**	.227*	.520**	.448**	.598**	.437**	.517**	.447**	1	.415**	.441**	.470**	.364**	.561**
	Sig. (2-tailed)	.000	.004	.018	.000	.000	.000	.000	.000	.000	.060	.000	.000	.000	.000	.000	.000		.000	.000	.000	.002	.000
	N	69	69	69	69	69	69	69	69	69	69	68	69	69	69	69	69	69	69	68	69	69	69
Q7.17 I plan to fly ___ in the	Pearson Correlation	.751**	.437**	.509**	.534**	.664**	.607**	.531**	.671**	.634**	.311**	.395**	.537**	.412**	.562**	.556**	.410**	.415**	1	.643**	.657**	.530**	.766**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.009	.001	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000
	N	69	69	69	69	69	69	69	69	69	69	68	69	69	69	69	69	69	69	68	69	69	69
Q7.18 Flying with ___ represents excellent value for money:	Pearson Correlation	.783**	.359**	.611**	.640**	.660**	.702**	.672**	.599**	.671**	.523**	.461**	.497**	.456**	.645**	.577**	.400**	.441**	.643**	1	.731**	.449**	.633**
	Sig. (2-tailed)	.000	.003	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.000	.000		.000	.000	.000
	N	68	68	68	68	68	68	68	68	68	68	67	68	68	68	68	68	68	68	68	68	68	68
Q7.19 When I think of flying with ___ I have positive thoughts:	Pearson Correlation	.894**	.506**	.649**	.748**	.860**	.800**	.686**	.514**	.775**	.658**	.696**	.671**	.624**	.765**	.742**	.620**	.470**	.657**	.731**	1	.509**	.509**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000
	N	69	69	69	69	69	69	69	69	69	69	68	69	69	69	69	69	69	69	68	69	69	69
Q7.20 I would forgive ___ if occasionally the product seemed sub-standard:	Pearson Correlation	.538**	.168	.289*	.335**	.421**	.477**	.289*	.296*	.424**	.172	.302*	.393**	.331**	.504**	.454**	.257*	.364**	.530**	.449**	.509**	1	.423**
	Sig. (2-tailed)	.000	.168	.016	.005	.000	.000	.016	.013	.000	.157	.012	.001	.005	.000	.000	.033	.002	.000	.000	.000		.000
	N	69	69	69	69	69	69	69	69	69	69	68	69	69	69	69	69	69	69	68	69	69	69
Q7.21 I talk about___ with my friends:	Pearson Correlation	.729**	.340**	.451**	.595**	.557**	.525**	.629**	.692**	.579**	.350**	.367**	.514**	.451**	.515**	.547**	.390**	.561**	.766**	.633**	.509**	.423**	1
	Sig. (2-tailed)	.000	.004	.000	.000	.000	.000	.000	.000	.000	.003	.002	.000	.000	.000	.000	.001	.000	.000	.000	.000	.000	
	N	69	69	69	69	69	69	69	69	69	69	68	69	69	69	69	69	69	69	68	69	69	69

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

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

E.1 Analysis of variance

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Q7.1 I see a lot of advertise ments about	Between Groups	.634	3	.211	.145	.933
	Within Groups	99.352	68	1.461		
	Total	99.986	71			
Q7.2 I understan d what ___ is trying to	Between Groups	2.104	3	.701	.497	.685
	Within Groups	95.896	68	1.410		
	Total	98.000	71			
Q7.3 ___ stands out from its competitor s:	Between Groups	5.119	3	1.706	1.110	.351
	Within Groups	104.534	68	1.537		
	Total	109.653	71			
Q7.4 I hold ___ in high regard:	Between Groups	1.483	3	.494	.403	.751
	Within Groups	83.392	68	1.226		
	Total	84.875	71			
Q7.5___liv es up to its promises:	Between Groups	5.575	3	1.858	1.619	.194
	Within Groups	74.627	65	1.148		
	Total	80.203	68			
Q7.6 ___ offers clear advantage vs the	Between Groups	3.580	3	1.193	1.137	.341
	Within Groups	69.292	66	1.050		
	Total	72.871	69			
Q7.7 I am strongly committed to fly with___	Between Groups	14.102	3	4.701	3.365	.024
	Within Groups	92.198	66	1.397		
	Total	106.300	69			
Q7.8 I can count on ___	Between Groups	7.598	3	2.533	2.254	.090
	Within Groups	74.173	66	1.124		
	Total	81.771	69			
Q7.9 ___ is innovative:	Between Groups	.203	3	.068	.050	.985
	Within Groups	88.435	65	1.361		
	Total	88.638	68			

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Q7.10___ cares about its customers :	Between Groups	.227	3	.076	.063	.979
	Within Groups	76.656	64	1.198		
	Total	76.882	67			
Q7.11 I have happy memories of flying	Between Groups	13.257	3	4.419	3.207	.029
	Within Groups	89.555	65	1.378		
	Total	102.812	68			
Q7.12 I can never go wrong flying with ___	Between Groups	8.912	3	2.971	2.243	.092
	Within Groups	86.074	65	1.324		
	Total	94.986	68			
Q7.13 I would recommend flying with ___	Between Groups	9.783	3	3.261	2.275	.088
	Within Groups	93.173	65	1.433		
	Total	102.957	68			
Q7.14 ___ consistently satisfies me:	Between Groups	12.619	3	4.206	3.999	.011
	Within Groups	68.367	65	1.052		
	Total	80.986	68			
Q7.15 If a problem with___'s service arose,	Between Groups	.193	3	.064	.059	.981
	Within Groups	71.140	65	1.094		
	Total	71.333	68			
Q7.16 I would pay extra to fly ___	Between Groups	6.903	3	2.301	1.525	.216
	Within Groups	98.082	65	1.509		
	Total	104.986	68			
Q7.17 I plan to fly ___ in the	Between Groups	11.679	3	3.893	2.743	.050
	Within Groups	92.263	65	1.419		
	Total	103.942	68			
Q7.18 Flying with ___ represents excellent	Between Groups	5.969	3	1.990	1.569	.205
	Within Groups	81.149	64	1.268		
	Total	87.118	67			
Q7.19 When I think of flying with ___ I have	Between Groups	1.715	3	.572	.374	.772
	Within Groups	99.444	65	1.530		
	Total	101.159	68			

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Q7.20 I would forgive ___ if occasionally the	Between Groups	15.294	3	5.098	3.537	.019
	Within Groups	93.692	65	1.441		
	Total	108.986	68			
Q7.21 I talk about___ with my friends:	Between Groups	31.535	3	10.512	7.200	.000
	Within Groups	94.900	65	1.460		
	Total	126.435	68			

E.2 Bonferroni test for multiple comparisons

Multiple Comparisons

Bonferroni

Dependent Variable	(I) Segment	(J) Segment	Mean Difference (I-J)	Std. Error	Sig.	Interval Lower Bound	Interval Upper Bound
Q7.1 I see a lot of advertisements about	Business most preferred	Leisure most preferred	.092	.345	1.000	-.85	1.03
		Business Virgin	.125	.427	1.000	-1.04	1.29
		Leisure virgin	-.163	.440	1.000	-1.36	1.03
	Leisure most preferred	Business most preferred	-.092	.345	1.000	-1.03	.85
		Business Virgin	.033	.424	1.000	-1.12	1.19
		Leisure virgin	-.255	.437	1.000	-1.44	.93
	Business Virgin	Business most preferred	-.125	.427	1.000	-1.29	1.04
		Leisure most preferred	-.033	.424	1.000	-1.19	1.12
		Leisure virgin	-.288	.505	1.000	-1.66	1.08
	Leisure virgin	Business most preferred	.163	.440	1.000	-1.03	1.36
		Leisure most preferred	.255	.437	1.000	-.93	1.44
		Business Virgin	.288	.505	1.000	-1.08	1.66
Q7.2 I understand what ___ is trying to tell me:	Business most preferred	Leisure most preferred	.057	.339	1.000	-.87	.98
		Business Virgin	-.250	.420	1.000	-1.39	.89
		Leisure virgin	-.402	.432	1.000	-1.58	.77
	Leisure most preferred	Business most preferred	-.057	.339	1.000	-.98	.87
		Business Virgin	-.307	.417	1.000	-1.44	.83
		Leisure virgin	-.458	.430	1.000	-1.63	.71
	Business Virgin	Business most preferred	.250	.420	1.000	-.89	1.39
		Leisure most preferred	.307	.417	1.000	-.83	1.44
		Leisure virgin	-.152	.496	1.000	-1.50	1.20
	Leisure virgin	Business most preferred	.402	.432	1.000	-.77	1.58
		Leisure most preferred	.458	.430	1.000	-.71	1.63
		Business Virgin	.152	.496	1.000	-1.20	1.50
Q7.3 ___ stands out from its competitors:	Business most preferred	Leisure most preferred	-.025	.354	1.000	-.99	.94
		Business Virgin	-.625	.438	.951	-1.82	.57
		Leisure virgin	-.534	.451	1.000	-1.76	.69
	Leisure most preferred	Business most preferred	.025	.354	1.000	-.94	.99
		Business Virgin	-.600	.435	1.000	-1.78	.58
		Leisure virgin	-.509	.449	1.000	-1.73	.71
	Business Virgin	Business most preferred	.625	.438	.951	-.57	1.82
		Leisure most preferred	.600	.435	1.000	-.58	1.78
		Leisure virgin	.091	.518	1.000	-1.32	1.50
	Leisure virgin	Business most preferred	.534	.451	1.000	-.69	1.76
		Leisure most preferred	.509	.449	1.000	-.71	1.73
		Business Virgin	-.091	.518	1.000	-1.50	1.32

Multiple Comparisons

Bonferroni

Q7.4 I hold ___ in high regard:	Business most preferred	Leisure most preferred	.012	.316	1.000	-.85	.87
		Business Virgin	-.375	.392	1.000	-1.44	.69
		Leisure virgin	-.163	.403	1.000	-1.26	.93
	Leisure most preferred	Business most preferred	-.012	.316	1.000	-.87	.85
		Business Virgin	-.387	.389	1.000	-1.44	.67
		Leisure virgin	-.175	.401	1.000	-1.26	.91
	Business Virgin	Business most preferred	.375	.392	1.000	-.69	1.44
		Leisure most preferred	.387	.389	1.000	-.67	1.44
		Leisure virgin	.212	.462	1.000	-1.04	1.47
	Leisure virgin	Business most preferred	.163	.403	1.000	-.93	1.26
		Leisure most preferred	.175	.401	1.000	-.91	1.26
		Business Virgin	-.212	.462	1.000	-1.47	1.04
Q7.5___lives up to its promises:	Business most preferred	Leisure most preferred	.182	.306	1.000	-.65	1.01
		Business Virgin	-.549	.390	.984	-1.61	.51
		Leisure virgin	-.458	.419	1.000	-1.60	.68
	Leisure most preferred	Business most preferred	-.182	.306	1.000	-1.01	.65
		Business Virgin	-.731	.388	.383	-1.79	.32
		Leisure virgin	-.640	.417	.776	-1.77	.49
	Business Virgin	Business most preferred	.549	.390	.984	-.51	1.61
		Leisure most preferred	.731	.388	.383	-.32	1.79
		Leisure virgin	.091	.482	1.000	-1.22	1.40
	Leisure virgin	Business most preferred	.458	.419	1.000	-.68	1.60
		Leisure most preferred	.640	.417	.776	-.49	1.77
		Business Virgin	-.091	.482	1.000	-1.40	1.22
Q7.6 ___ offers clear advantage vs the competition:	Business most preferred	Leisure most preferred	.025	.293	1.000	-.77	.82
		Business Virgin	-.542	.362	.838	-1.53	.44
		Leisure virgin	-.375	.400	1.000	-1.46	.71
	Leisure most preferred	Business most preferred	-.025	.293	1.000	-.82	.77
		Business Virgin	-.567	.360	.721	-1.55	.41
		Leisure virgin	-.400	.398	1.000	-1.48	.68
	Business Virgin	Business most preferred	.542	.362	.838	-.44	1.53
		Leisure most preferred	.567	.360	.721	-.41	1.55
		Leisure virgin	.167	.452	1.000	-1.06	1.40
	Leisure virgin	Business most preferred	.375	.400	1.000	-.71	1.46
		Leisure most preferred	.400	.398	1.000	-.68	1.48
		Business Virgin	-.167	.452	1.000	-1.40	1.06

Multiple Comparisons							
Bonferroni							
Q7.7 I am strongly committed to fly with___	Business most preferred	Leisure most preferred	.188	.338	1.000	-.73	1.11
		Business Virgin	-.792	.418	.375	-1.93	.34
		Leisure virgin	-.958	.462	.252	-2.21	.30
	Leisure most preferred	Business most preferred	-.188	.338	1.000	-1.11	.73
		Business Virgin	-.980	.415	.127	-2.11	.15
		Leisure virgin	-1.147	.459	.090	-2.40	.10
	Business Virgin	Business most preferred	.792	.418	.375	-.34	1.93
		Leisure most preferred	.980	.415	.127	-.15	2.11
		Leisure virgin	-.167	.521	1.000	-1.58	1.25
	Leisure virgin	Business most preferred	.958	.462	.252	-.30	2.21
		Leisure most preferred	1.147	.459	.090	-.10	2.40
		Business Virgin	.167	.521	1.000	-1.25	1.58
Q7.8 I can count on ___	Business most preferred	Leisure most preferred	-.063	.303	1.000	-.89	.76
		Business Virgin	-.583	.386	.813	-1.63	.47
		Leisure virgin	-.883	.399	.182	-1.97	.20
	Leisure most preferred	Business most preferred	.063	.303	1.000	-.76	.89
		Business Virgin	-.520	.384	1.000	-1.56	.52
		Leisure virgin	-.820	.397	.256	-1.90	.26
	Business Virgin	Business most preferred	.583	.386	.813	-.47	1.63
		Leisure most preferred	.520	.384	1.000	-.52	1.56
		Leisure virgin	-.300	.463	1.000	-1.56	.96
	Leisure virgin	Business most preferred	.883	.399	.182	-.20	1.97
		Leisure most preferred	.820	.397	.256	-.26	1.90
		Business Virgin	.300	.463	1.000	-.96	1.56
Q7.9 ___ is innovative:	Business most preferred	Leisure most preferred	.038	.333	1.000	-.87	.95
		Business Virgin	.140	.425	1.000	-1.02	1.30
		Leisure virgin	-.042	.456	1.000	-1.28	1.20
	Leisure most preferred	Business most preferred	-.038	.333	1.000	-.95	.87
		Business Virgin	.102	.422	1.000	-1.05	1.25
		Leisure virgin	-.080	.453	1.000	-1.31	1.15
	Business Virgin	Business most preferred	-.140	.425	1.000	-1.30	1.02
		Leisure most preferred	-.102	.422	1.000	-1.25	1.05
		Leisure virgin	-.182	.524	1.000	-1.61	1.24
	Leisure virgin	Business most preferred	.042	.456	1.000	-1.20	1.28
		Leisure most preferred	.080	.453	1.000	-1.15	1.31
		Business Virgin	.182	.524	1.000	-1.24	1.61

Multiple Comparisons							
Bonferroni							
Q7.10___ cares about its customers :	Business most preferred	Leisure most preferred	-.071	.316	1.000	-.93	.79
		Business Virgin	-.119	.401	1.000	-1.21	.97
		Leisure virgin	-.169	.430	1.000	-1.34	1.00
	Leisure most preferred	Business most preferred	.071	.316	1.000	-.79	.93
		Business Virgin	-.047	.396	1.000	-1.13	1.03
		Leisure virgin	-.098	.425	1.000	-1.26	1.06
	Business Virgin	Business most preferred	.119	.401	1.000	-.97	1.21
		Leisure most preferred	.047	.396	1.000	-1.03	1.13
		Leisure virgin	-.051	.492	1.000	-1.39	1.29
	Leisure virgin	Business most preferred	.169	.430	1.000	-1.00	1.34
		Leisure most preferred	.098	.425	1.000	-1.06	1.26
		Business Virgin	.051	.492	1.000	-1.29	1.39
Q7.11 I have happy memories of flying with ___	Business most preferred	Leisure most preferred	.668	.335	.303	-.24	1.58
		Business Virgin	-.473	.427	1.000	-1.64	.69
		Leisure virgin	-.292	.459	1.000	-1.54	.96
	Leisure most preferred	Business most preferred	-.668	.335	.303	-1.58	.24
		Business Virgin	-1.142	.425	.055	-2.30	.01
		Leisure virgin	-.960	.456	.236	-2.20	.28
	Business Virgin	Business most preferred	.473	.427	1.000	-.69	1.64
		Leisure most preferred	1.142	.425	.055	-.01	2.30
		Leisure virgin	.182	.528	1.000	-1.25	1.62
	Leisure virgin	Business most preferred	.292	.459	1.000	-.96	1.54
		Leisure most preferred	.960	.456	.236	-.28	2.20
		Business Virgin	-.182	.528	1.000	-1.62	1.25
Q7.12 I can never go wrong flying with ___	Business most preferred	Leisure most preferred	.552	.329	.589	-.34	1.45
		Business Virgin	-.208	.419	1.000	-1.35	.93
		Leisure virgin	-.431	.450	1.000	-1.65	.79
	Leisure most preferred	Business most preferred	-.552	.329	.589	-1.45	.34
		Business Virgin	-.760	.416	.435	-1.89	.37
		Leisure virgin	-.982	.447	.190	-2.20	.24
	Business Virgin	Business most preferred	.208	.419	1.000	-.93	1.35
		Leisure most preferred	.760	.416	.435	-.37	1.89
		Leisure virgin	-.222	.517	1.000	-1.63	1.19
	Leisure virgin	Business most preferred	.431	.450	1.000	-.79	1.65
		Leisure most preferred	.982	.447	.190	-.24	2.20
		Business Virgin	.222	.517	1.000	-1.19	1.63

Multiple Comparisons							
Bonferroni							
Q7.13 I would recommend flying with ___	Business most preferred	Leisure most preferred	.253	.342	1.000	-.68	1.18
		Business Virgin	-.667	.436	.786	-1.85	.52
		Leisure virgin	-.667	.468	.954	-1.94	.61
	Leisure most preferred	Business most preferred	-.253	.342	1.000	-1.18	.68
		Business Virgin	-.920	.433	.225	-2.10	.26
		Leisure virgin	-.920	.465	.314	-2.19	.35
	Business Virgin	Business most preferred	.667	.436	.786	-.52	1.85
		Leisure most preferred	.920	.433	.225	-.26	2.10
		Leisure virgin	.000	.538	1.000	-1.46	1.46
	Leisure virgin	Business most preferred	.667	.468	.954	-.61	1.94
		Leisure most preferred	.920	.465	.314	-.35	2.19
		Business Virgin	.000	.538	1.000	-1.46	1.46
Q7.14 ___ consistently satisfies me:	Business most preferred	Leisure most preferred	.385	.293	1.000	-.41	1.18
		Business Virgin	-.648	.373	.525	-1.66	.37
		Leisure virgin	-.708	.401	.492	-1.80	.38
	Leisure most preferred	Business most preferred	-.385	.293	1.000	-1.18	.41
		Business Virgin	-1.033*	.371	.042	-2.04	-.02
		Leisure virgin	-1.093*	.399	.047	-2.18	-.01
	Business Virgin	Business most preferred	.648	.373	.525	-.37	1.66
		Leisure most preferred	1.033*	.371	.042	.02	2.04
		Leisure virgin	-.061	.461	1.000	-1.32	1.19
	Leisure virgin	Business most preferred	.708	.401	.492	-.38	1.80
		Leisure most preferred	1.093*	.399	.047	.01	2.18
		Business Virgin	.061	.461	1.000	-1.19	1.32
Q7.15 If a problem with___'s service arose,	Business most preferred	Leisure most preferred	.108	.299	1.000	-.71	.92
		Business Virgin	-.019	.381	1.000	-1.06	1.02
		Leisure virgin	.042	.409	1.000	-1.07	1.15
	Leisure most preferred	Business most preferred	-.108	.299	1.000	-.92	.71
		Business Virgin	-.127	.379	1.000	-1.16	.90
		Leisure virgin	-.067	.407	1.000	-1.17	1.04
	Business Virgin	Business most preferred	.019	.381	1.000	-1.02	1.06
		Leisure most preferred	.127	.379	1.000	-.90	1.16
		Leisure virgin	.061	.470	1.000	-1.22	1.34
	Leisure virgin	Business most preferred	-.042	.409	1.000	-1.15	1.07
		Leisure most preferred	.067	.407	1.000	-1.04	1.17
		Business Virgin	-.061	.470	1.000	-1.34	1.22

Multiple Comparisons							
Bonferroni							
Q7.16 I would pay extra to fly ___	Business most preferred	Leisure most preferred	-.413	.351	1.000	-1.37	.54
		Business Virgin	-.242	.447	1.000	-1.46	.97
		Leisure virgin	-1.000	.480	.247	-2.31	.31
	Leisure most preferred	Business most preferred	.413	.351	1.000	-.54	1.37
		Business Virgin	.171	.444	1.000	-1.04	1.38
		Leisure virgin	-.587	.478	1.000	-1.89	.71
	Business Virgin	Business most preferred	.242	.447	1.000	-.97	1.46
		Leisure most preferred	-.171	.444	1.000	-1.38	1.04
		Leisure virgin	-.758	.552	1.000	-2.26	.74
	Leisure virgin	Business most preferred	1.000	.480	.247	-.31	2.31
		Leisure most preferred	.587	.478	1.000	-.71	1.89
		Business Virgin	.758	.552	1.000	-.74	2.26
Q7.17 I plan to fly ___ in the	Business most preferred	Leisure most preferred	.045	.340	1.000	-.88	.97
		Business Virgin	-.784	.434	.452	-1.96	.40
		Leisure virgin	-.986	.466	.228	-2.25	.28
	Leisure most preferred	Business most preferred	-.045	.340	1.000	-.97	.88
		Business Virgin	-.829	.431	.353	-2.00	.34
		Leisure virgin	-1.031	.463	.177	-2.29	.23
	Business Virgin	Business most preferred	.784	.434	.452	-.40	1.96
		Leisure most preferred	.829	.431	.353	-.34	2.00
		Leisure virgin	-.202	.535	1.000	-1.66	1.26
	Leisure virgin	Business most preferred	.986	.466	.228	-.28	2.25
		Leisure most preferred	1.031	.463	.177	-.23	2.29
		Business Virgin	.202	.535	1.000	-1.26	1.66
Q7.18 Flying with ___ represents excellent value for money:	Business most preferred	Leisure most preferred	.107	.322	1.000	-.77	.98
		Business Virgin	-.633	.424	.840	-1.79	.52
		Leisure virgin	-.556	.440	1.000	-1.75	.64
	Leisure most preferred	Business most preferred	-.107	.322	1.000	-.98	.77
		Business Virgin	-.740	.421	.503	-1.89	.41
		Leisure virgin	-.662	.438	.811	-1.85	.53
	Business Virgin	Business most preferred	.633	.424	.840	-.52	1.79
		Leisure most preferred	.740	.421	.503	-.41	1.89
		Leisure virgin	.078	.517	1.000	-1.33	1.49
	Leisure virgin	Business most preferred	.556	.440	1.000	-.64	1.75
		Leisure most preferred	.662	.438	.811	-.53	1.85
		Business Virgin	-.078	.517	1.000	-1.49	1.33

Multiple Comparisons

Bonferroni							
Q7.19 When I think of flying with ___ I have positive thoughts:	Business most preferred	Leisure most preferred	.220	.353	1.000	-.74	1.18
		Business Virgin	-.227	.450	1.000	-1.45	1.00
		Leisure virgin	-.056	.483	1.000	-1.37	1.26
	Leisure most preferred	Business most preferred	-.220	.353	1.000	-1.18	.74
		Business Virgin	-.447	.448	1.000	-1.67	.77
		Leisure virgin	-.276	.481	1.000	-1.58	1.03
	Business Virgin	Business most preferred	.227	.450	1.000	-1.00	1.45
		Leisure most preferred	.447	.448	1.000	-.77	1.67
		Leisure virgin	.172	.556	1.000	-1.34	1.68
	Leisure virgin	Business most preferred	.056	.483	1.000	-1.26	1.37
		Leisure most preferred	.276	.481	1.000	-1.03	1.58
		Business Virgin	-.172	.556	1.000	-1.68	1.34
Q7.20 I would forgive ___ if occasionally the product seemed sub-standard:	Business most preferred	Leisure most preferred	-.217	.343	1.000	-1.15	.72
		Business Virgin	-1.235*	.437	.038	-2.42	-.05
		Leisure virgin	-.972	.469	.254	-2.25	.30
	Leisure most preferred	Business most preferred	.217	.343	1.000	-.72	1.15
		Business Virgin	-1.018	.434	.133	-2.20	.16
		Leisure virgin	-.756	.467	.662	-2.03	.51
	Business Virgin	Business most preferred	1.235*	.437	.038	.05	2.42
		Leisure most preferred	1.018	.434	.133	-.16	2.20
		Leisure virgin	.263	.540	1.000	-1.21	1.73
	Leisure virgin	Business most preferred	.972	.469	.254	-.30	2.25
		Leisure most preferred	.756	.467	.662	-.51	2.03
		Business Virgin	-.263	.540	1.000	-1.73	1.21
Q7.21 I talk about___ with my friends:	Business most preferred	Leisure most preferred	-.318	.345	1.000	-1.26	.62
		Business Virgin	-1.231*	.440	.041	-2.43	-.03
		Leisure virgin	-1.958*	.472	.001	-3.24	-.67
	Leisure most preferred	Business most preferred	.318	.345	1.000	-.62	1.26
		Business Virgin	-.913	.437	.244	-2.10	.28
		Leisure virgin	-1.640*	.470	.005	-2.92	-.36
	Business Virgin	Business most preferred	1.231*	.440	.041	.03	2.43
		Leisure most preferred	.913	.437	.244	-.28	2.10
		Leisure virgin	-.727	.543	1.000	-2.21	.75
	Leisure virgin	Business most preferred	1.958*	.472	.001	.67	3.24
		Leisure most preferred	1.640*	.470	.005	.36	2.92
		Business Virgin	.727	.543	1.000	-.75	2.21

*. The mean difference is significant at the 0.05 level.

Appendix F **List of full-service carriers used in online questionnaire**

Pre-code	Full service carrier brands
1	Lufthansa
2	Air France
3	Delta Airlines
4	American Airlines
5	Japan Airlines
6	United Airlines
7	ANA All Nippon Airways
8	British Airways
9	Continental Airlines
10	Emirates
11	Qantas
12	US Airways
13	Southwest Airlines
14	Singapore Airlines
15	Cathay Pacific
16	Air Canada
17	China Southern Airlines
18	Air China
19	Korean Air
20	SAS Scandinavian Airlines
21	Iberia
22	China Eastern Airlines
23	TAM Airlines
24	Saudi Arabian Airlines
25	Thai Airways International
26	Air Berlin

Pre-code	Full service carrier brands
27	Turkish Airlines
28	Ryan Air
29	Virgin Airways
30	EasyJet
31	Alitalia
32	Lan Airlines
33	Qatar Airways
34	Alaska Airlines
35	Aeroflot Airlines
36	Malaysia Airlines
37	Jetblue Airways
38	China Airlines
39	Asiana Airlines
40	Austrian Airlines -
41	South African Airways
42	Air India -
43	TAP
44	Air New Zealand
45	Finnair
46	SkyWest Airlines
47	Jet Airways
48	Hainan Airlines
49	Etihad Airways
50	EVA Air
51	Shanghai Airlines
52	Shenzhen Airlines
53	Mexicana
54	Egyptair
55	Aer Lingus

Pre-code	Full service carrier brands
56	Air Europa
57	El Al Israel Airlines
58	Republic Airways
59	Condor
60	AeroMexico
61	Garuda Indonesia
62	Avianca
63	Royal Air Maroc
64	Gulf Air -
65	S7 Airlines
66	Jazz Air
67	Philippine Airlines
68	Vietnam Airlines
69	BMI
70	Copa Airlines -
71	Hawaiian Airlines
72	Brussels Airlines
73	Norwegian
74	Ethiopian Airlines
75	Pakistan Airlines International
76	Xiamen Airlines
77	CSA Czech Airlines
78	Kingfisher Airlines
79	Mesa Air Group
80	UTair Aviation
81	Meridana Fly
82	Kenya Airways
83	Transaero Airlines
84	LOT Polish Airlines

Pre-code	Full service carrier brands
85	Royal Jordanian Airlines
86	Pinnacle Airlines
87	Aerolineas Argentina
88	Iran Air
89	Tunisair
90	Shangdong Airlines
91	Air Nostrum
92	Kuwait Airways
93	Air Algerie
94	ABX Air
95	Expressjet
96	Corsairfly
97	World Airways
98	Iceland Air
99	Kalitta Air
100	SriLankan Airlines
101	SunExpress
102	Luxair
103	Allegian Air
104	Middle East Airlines
105	Air Astana
106	Air Wisconsin
107	Air Mauritius
108	Cebu Pacific Air
109	Air Austral
110	Malev
111	EVA Air
112	Skymark Airlines
113	Omni Air International

Pre-code	Full service carrier brands
114	Oman Air
115	Air Baltic
116	Biman Bangladesh
117	Iberworld
118	Bangkok Airways
119	Tarom -
120	Air Caraibes
121	Livingston
122	Cyprus Airways

Source: Dunning-Mitchell and Cox, 2010

Appendix G **List of low-cost carriers used in the online questionnaire**

Precode	Low cost carrier brands
123	Southwest Airlines
124	GOL
125	Spicejet
126	Niki
127	Thomson Airways
128	Air Tran
129	WestJet Airlines
130	Virgin Blue
131	Thomas Cook
132	Volga-Dnepr Airlines
133	Westjet Airlines -
134	Flybe
135	Aegean Airlines
136	Vueling Airlines
137	Germanwing
138	Spirit Airlines
139	Wizz Air
140	Virgin America
141	Air Arabia
142	Jet2
143	Flybe
144	Aegean Airlines
145	Vueling Airlines
146	Germanwings
147	Spirit Airlines

Precode	Low cost carrier brands
148	Monarch Airlines
149	Grupo TACA
150	Air Asia
151	Monarch Airlines

Source: Dunning-Mitchell and Cox, 2010

Appendix H **Online questionnaire**

I am a PhD student at Cranfield University. I am currently conducting a doctoral study on airline brands. I am interested in learning about your views towards airlines.

The responses given in this questionnaire will only be used for the purpose of my doctoral study. Responses are anonymous. The information you provided are confidential.

This should take about 10 minutes of your time.

Your participation and information is an invaluable part of my study.

Question S1

What is your age?

_____

Question S2

What is your gender?

1. Male
2. Female

Question S3

In the past 12 months how many business trips have you taken?

1. None
2. 1 or 2 trips
3. 3-5 trips
4. 6-10 trips
5. 11-15 trips
6. 16-20 trips
7. 21-25 trips
8. 26-30 trips
9. 31-35 trips
10. 35-39 trips
11. 40 or more trips

Question S4

In the past 12 months how many Leisure trips have you taken?

1. None
2. 1 or 2 trips
3. 3-5 trips
4. 6-10 trips
5. 11-15 trips
6. 16-20 trips
7. 21-25 trips
8. 26-30 trips
9. 31-35 trips
10. 35-39 trips
11. 40 or more trips

Question 1

Thinking about your most recent leisure trip: who chose the airlines?

1. Self
2. Spouse
3. Other family members
4. Friends
5. Other

Question 2

Thinking about your most recent business trip: who chose the airlines?

1. Self
2. My company travel department
3. Staff at my business (assistant, travel department)
4. Travel Management company website
5. Travel Management company by phone, email or in person
6. Other

Question 3

Thinking only about your LAST TRIP and the FLIGHT that returned you to your home city, in which one of the classes listen below did you travel?

1. First Class
2. Business Class
3. Premium Economy
4. Economy Class

Question 4

Please name the first three airlines you can think of:

Question 5

If money or location was not an object with which airline would you most like to fly with?

Question 6

For your next trip: how likely you are to fly with (airlines)

1. Definitely will fly
2. Probably will fly
3. May or may not fly
4. Probably will not fly
5. Definitely will not fly

Question 7

Thinking only about (airlines), please indicate your level of agreement with each of the following statements

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I see a lot of advertisements about (airlines)					
I understand what (airlines) is trying to tell me					
(airlines)stands out from its competitors					
I hold (airlines) in high regard					
(airlines)lives up to its promises					
(airlines)offers clear advantage vs the competition					
I am strongly committed to fly with (airlines)					
I can count on (airlines)					
(airlines)is innovative					
(airlines)cares about its customers					
I have happy memories of flying with (airlines)					
I can never go wrong flying with (airlines)					
I would recommend flying with (airlines)					
(airlines)consistently satisfies me					
If a problem with (airlines) 's service arose, (airlines) would quickly fix it					
I would pay extra to fly (airlines)					
I plan to fly (airlines)in the future					
Flying with (airlines) represents excellent value for money					
When I think of flying with (airlines)I have positive thoughts					
I would forgive this (airlines) if occasionally the product seemed sub-standard					

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I talk about (airlines) with my friends					

Question 8

Listed below are several characteristics of an airline. How different is the airline you most like to fly (airlines) compared to (airlines) and (airlines), (based on what you already know about them, whether or not you have travelled with these airlines).

⇨ Choose two from List A.

1. British Airways
2. Virgin Atlantic Airways
3. Lufthansa
4. Thai Airways International
5. Air France
6. Qantas
7. American Airlines
8. Iberia
9. Swiss Air Lines
10. Delta Airlines

⇨ Choose two from the following:

1. EasyJet
2. Ryanair
3. Germanwings
4. Wizz Air

5. Flybe
6. BMI Baby
7. Jet2
8. TuiFly

	'A lot worse'	'A little worse'	'About the same'	'A little better'	'A lot better'
Frequent flights to destinations					
Convenient flight schedule					
Availability of non-stop flights					
On-time baggage delivery upon arrival					
Advance seat selection					
Free tickets from Frequent Flyer programme					
Internet check in					
Up to date aircraft					
Personal on-board entertainment					
Seat space					
Meal service					
Complimentary newspapers					
Physical appearance of employees					
Close attention by cabin crew					
Cabin crew's ability to answer questions					
Employees who are willing to help passengers					
Courtesy of employees					
Employees who have the knowledge to answer questions when things goes wrong					
Sincere interest in solving problems					
Adequacy of information on airlines' websites					
Ticket purchase opportunity via Internet					
Availability of airline website on the internet					

	'A lot worse'	'A little worse'	'About the same'	'A little better'	'A lot better'
Price					
Value for money					

Question 9

Thinking of these characteristics of, how influential are these characteristics in choosing your next flight with this airline?

	Not at all influential on my choice to fly (airlines)	Of little influence on my choice to fly (airlines)	Somewhat influential on my choice to fly (airlines)	Very influential to fly (airlines)
Frequent flights to destinations				
Convenient flight schedules				
Availability of non-stop flights				
On-time baggage delivery upon arrival				
Advance seat selection				
Free tickets from Frequent Flyer programme				
Internet check in				
Up to date aircraft				
Personal on-board entertainment				
Seat space				
Meal service				
Complimentary newspapers				
Physical appearance of employees				
Close attention by cabin crew				
Cabin crew's ability to answer questions				
Employees who are willing to help passengers				
Courtesy of employees				

	Not at all influential on my choice to fly (airlines)	Of little influence on my choice to fly (airlines)	Somewhat influential on my choice to fly (airlines)	Very influential to fly (airlines)
Employees who have the knowledge to answer questions when things goes wrong				
Sincere interest in solving problems				
Adequacy of information on airlines' websites				
Ticket purchase opportunity via Internet				
Availability of airline website on the internet				
Price				
Value for money				

Question 10

Have you flown Business or First Class at least once in just the past two years?

1. Yes
2. No – Go to Question 13

Question 11

Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.

	Haven't used	Have used	Don't recall using
Free tickets from Frequent Flyer programme			
Priority reservation line			
Exclusive check in desks			
Priority boarding			
Exclusive airport lounge			
On-board amenity kit			
Priority deplaning			
Fast track immigration upon arrival			
Priority bag delivery			
Arrival lounge			

Question 12

Thinking of these products and services, how important are they for you during your travel?

	Don't' need it	Nice but not necessary	Must have this service
Free tickets from Frequent Flyer programme			
Priority reservation line			
Exclusive check in desks			
Priority boarding			
Exclusive airport lounge			
On-board amenity kit			
Priority deplaning			
Fast track immigration			
Priority bag delivery			
Arrival lounge			

Question 13

In the past 12 months, as your best guess, how many return trips have you taken for

	Leisure		**Business**	
	Short haul flights (less than 5 hours)	Long haul flights (more than 5 hours)	Short haul flights (less than 5 hours)	Long haul flights (more than 5 hours)
None				
1 or 2 trips				
3-5 trips				
6-10 trips				
11-15 trips				
16-20 trips				
21-25 trips				
26-30 trips				
31-35 trips				
35-39 trips				
40 or more trips				

Question 14

Which if these describes your current working Status?

1. Employed full-time
2. Employed part-time
3. Self-employed
4. Housewife/husband
5. Semi-retired
6. Retired
7. Student
8. Unemployed

Question 15

How many employees work for your organisation?

1. 1-24 employees
2. 25-99 employees
3. 100-999 employees
4. 1000-4999 employees
5. 5000 and more employees
6. Do not know

Question 16

What is your nationality?

1. British
2. Citizen of EU nations
3. Others

Appendix I **Exploratory analysis**

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Q7.1 I see a lot of advertisements about	550	100.0%	0	.0%	550	100.0%
Q7.2 I understand what ___ is trying to tell me:	550	100.0%	0	.0%	550	100.0%
Q7.3 ___ stands out from its competitors:	550	100.0%	0	.0%	550	100.0%
Q7.4 I hold ___ in high regard:	550	100.0%	0	.0%	550	100.0%
Q7.5___lives up to its promises:	550	100.0%	0	.0%	550	100.0%
Q7.6 ___ offers clear advantage vs the competition:	550	100.0%	0	.0%	550	100.0%
Q7.7 I am strongly committed to fly with___	550	100.0%	0	.0%	550	100.0%
Q7.8 I can count on ___	550	100.0%	0	.0%	550	100.0%
Q7.9 ___ is innovative:	550	100.0%	0	.0%	550	100.0%
Q7.10___ cares about its customers:	550	100.0%	0	.0%	550	100.0%
Q7.11 I have happy memories of flying with ___	550	100.0%	0	.0%	550	100.0%
Q7.12 I can never go wrong flying with ___	550	100.0%	0	.0%	550	100.0%
Q7.13 I would recommend flying with ___	550	100.0%	0	.0%	550	100.0%
Q7.14 ___ consistently satisfies me:	550	100.0%	0	.0%	550	100.0%
Q7.15 If a problem with___'s service arose,	550	100.0%	0	.0%	550	100.0%
Q7.16 I would pay extra to fly ___	550	100.0%	0	.0%	550	100.0%
Q7.17 I plan to fly ___ in the	550	100.0%	0	.0%	550	100.0%
Q7.18 Flying with ___ represents excellent value for money:	550	100.0%	0	.0%	550	100.0%
Q7.19 When I think of flying with ___ I have positive thoughts:	550	100.0%	0	.0%	550	100.0%
Q7.20 I would forgive ___ if occasionally the product seemed sub-standard:	550	100.0%	0	.0%	550	100.0%
Q7.21 I talk about___ with my friends:	550	100.0%	0	.0%	550	100.0%

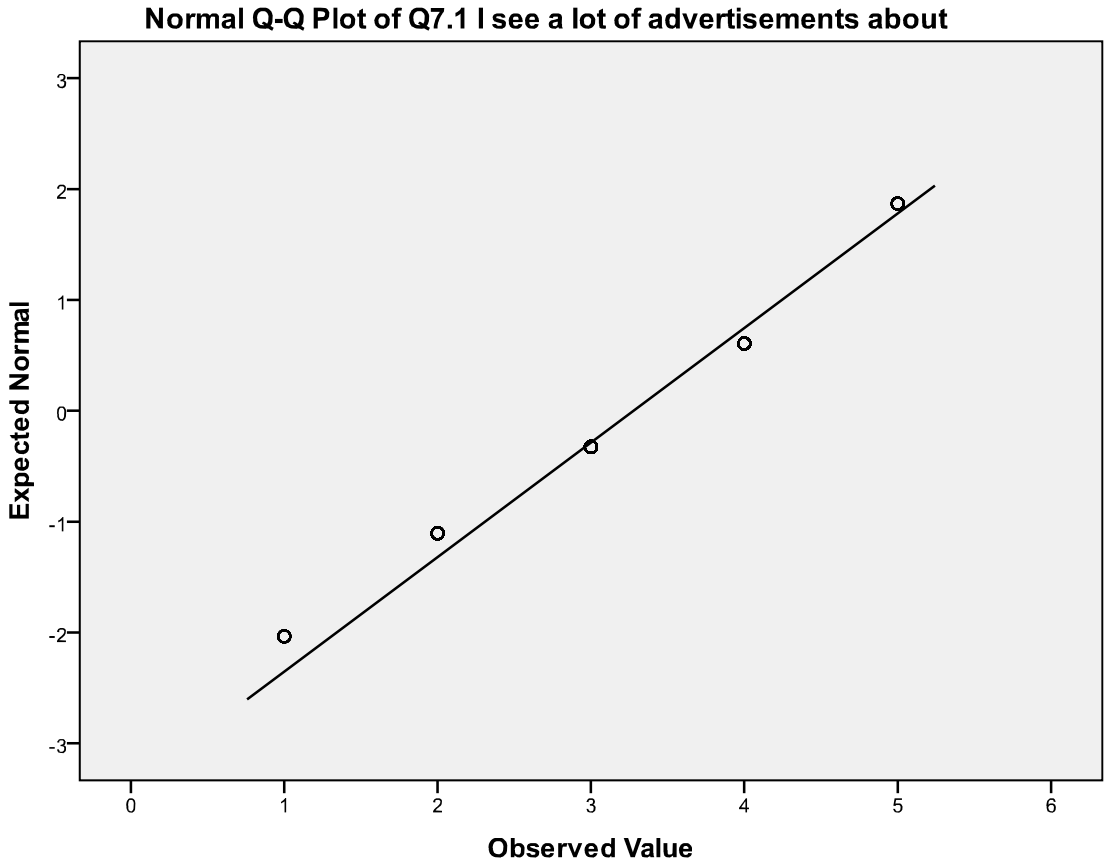
Appendix J **Tests of normality assumption**

Tests of Normality

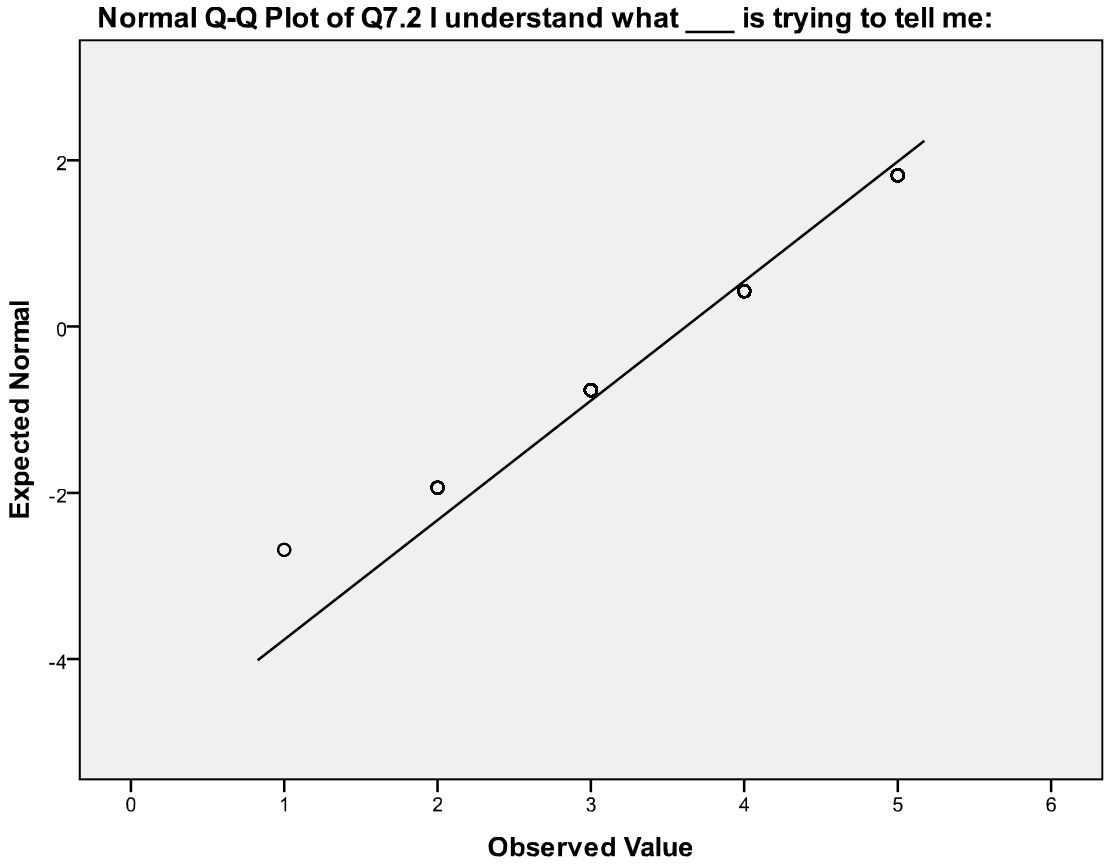
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Q7.1 I see a lot of advertisements about	.256	550	.000	.877	550	.000
Q7.2 I understand what ___ is trying to tell me:	.310	550	.000	.814	550	.000
Q7.3 ___ stands out from its competitors:	.349	550	.000	.778	550	.000
Q7.4 I hold ___ in high regard:	.341	550	.000	.748	550	.000
Q7.5___lives up to its promises:	.328	550	.000	.806	550	.000
Q7.6 ___ offers clear advantage vs the competition:	.295	550	.000	.846	550	.000
Q7.7 I am strongly committed to fly with___	.228	550	.000	.887	550	.000
Q7.8 I can count on ___	.322	550	.000	.814	550	.000
Q7.9 ___ is innovative:	.271	550	.000	.834	550	.000
Q7.10___ cares about its customers:	.353	550	.000	.772	550	.000
Q7.11 I have happy memories of flying with ___	.256	550	.000	.859	550	.000
Q7.12 I can never go wrong flying with ___	.243	550	.000	.856	550	.000
Q7.13 I would recommend flying with ___	.310	550	.000	.805	550	.000
Q7.14 ___ consistently satisfies me:	.278	550	.000	.841	550	.000
Q7.15 If a problem with___'s service arose,	.298	550	.000	.823	550	.000
Q7.16 I would pay extra to fly ___	.219	550	.000	.885	550	.000
Q7.17 I plan to fly ___ in the	.282	550	.000	.854	550	.000
Q7.18 Flying with ___ represents excellent value for money:	.250	550	.000	.870	550	.000
Q7.19 When I think of flying with ___ I have positive thoughts:	.342	550	.000	.756	550	.000
Q7.20 I would forgive ___ if occasionally the product seemed sub-standard:	.185	550	.000	.901	550	.000
Q7.21 I talk about___ with my friends:	.191	550	.000	.909	550	.000

a. Lilliefors Significance Correction

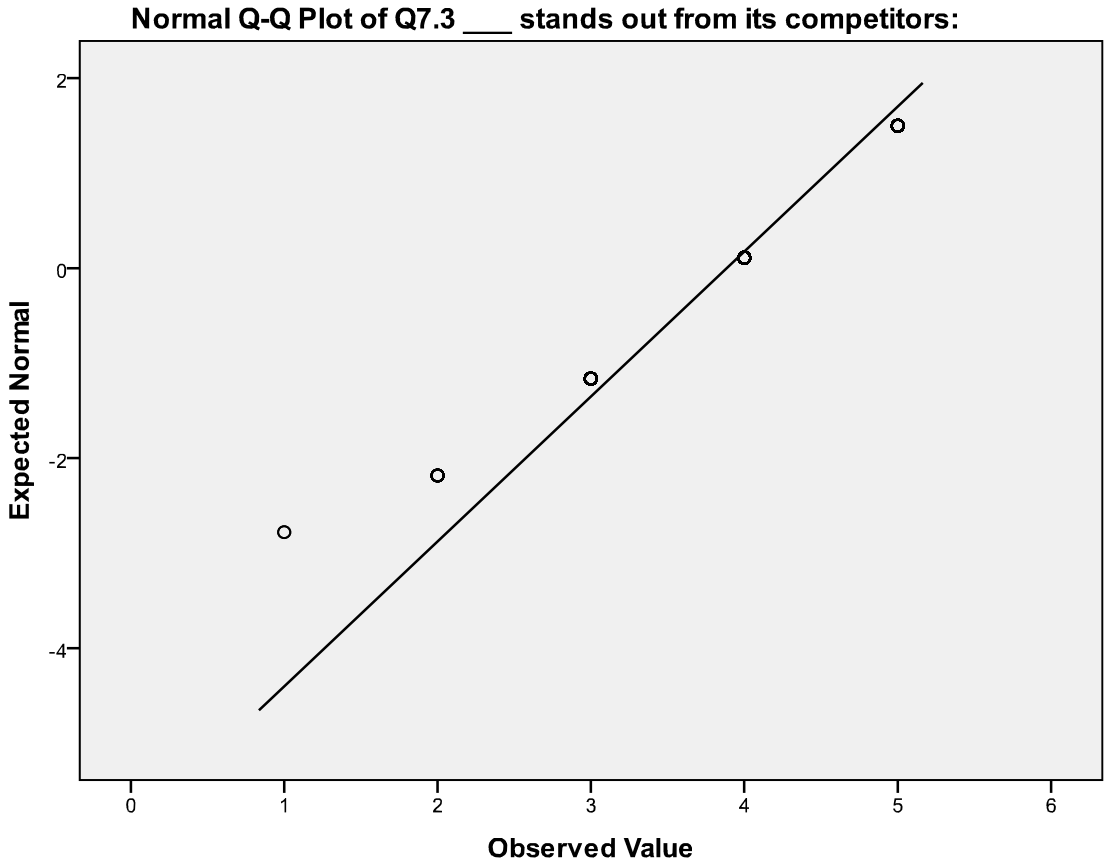
J.1 Q7.1 ‘I see a lot of advertisements about (airlines)’



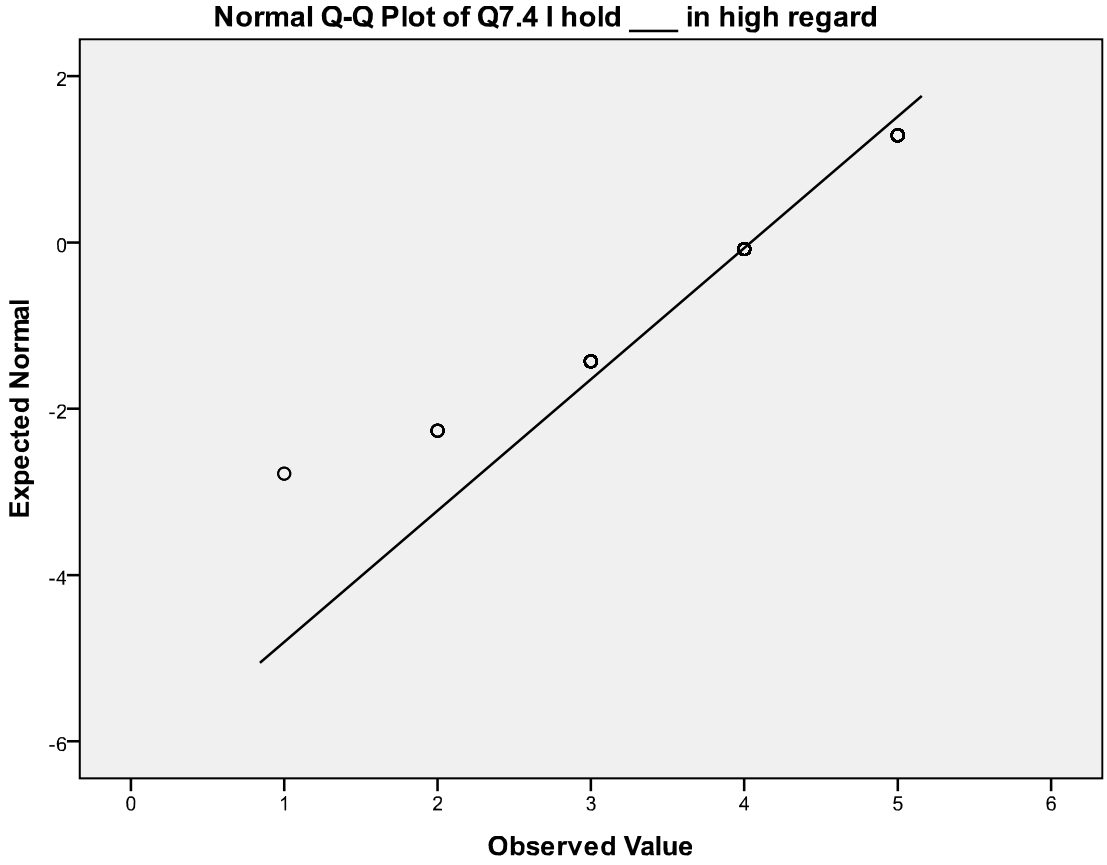
J.2 Q7.2 ‘I understand what (airlines) is trying to tell me’



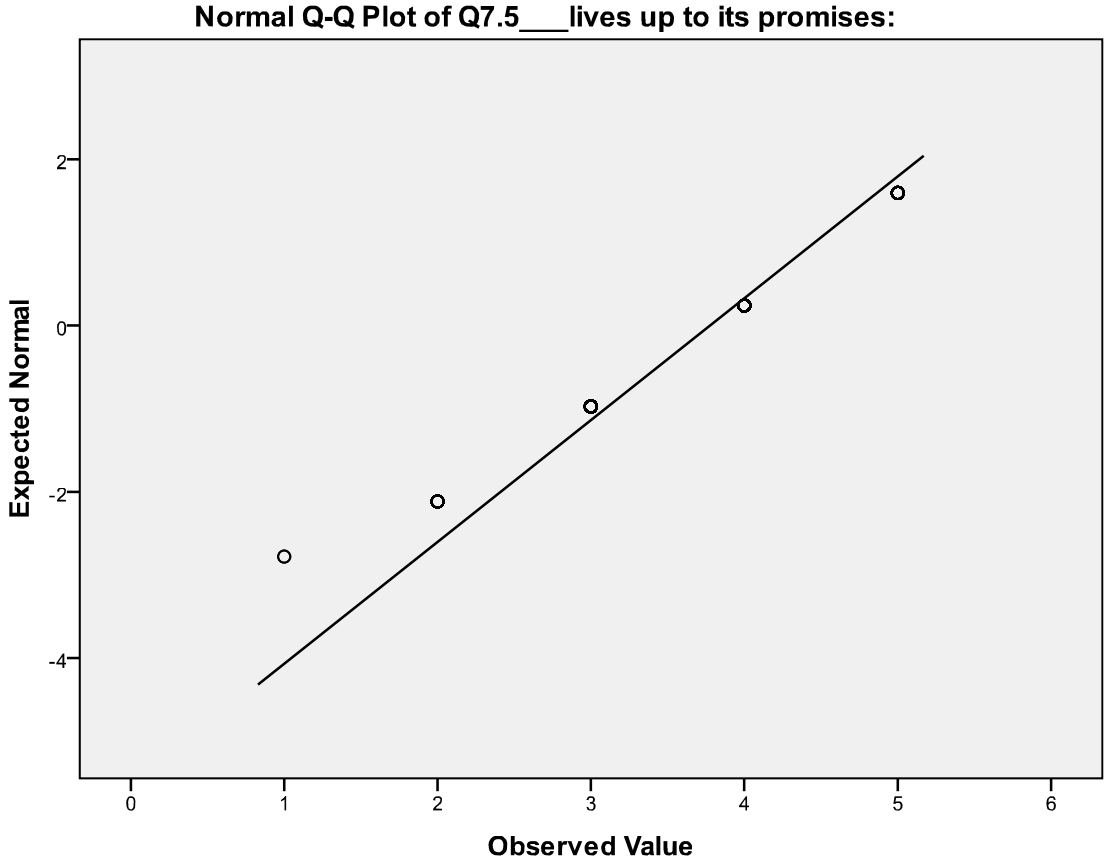
J.3 Q7.3 '(airline) stands out from its competitors'



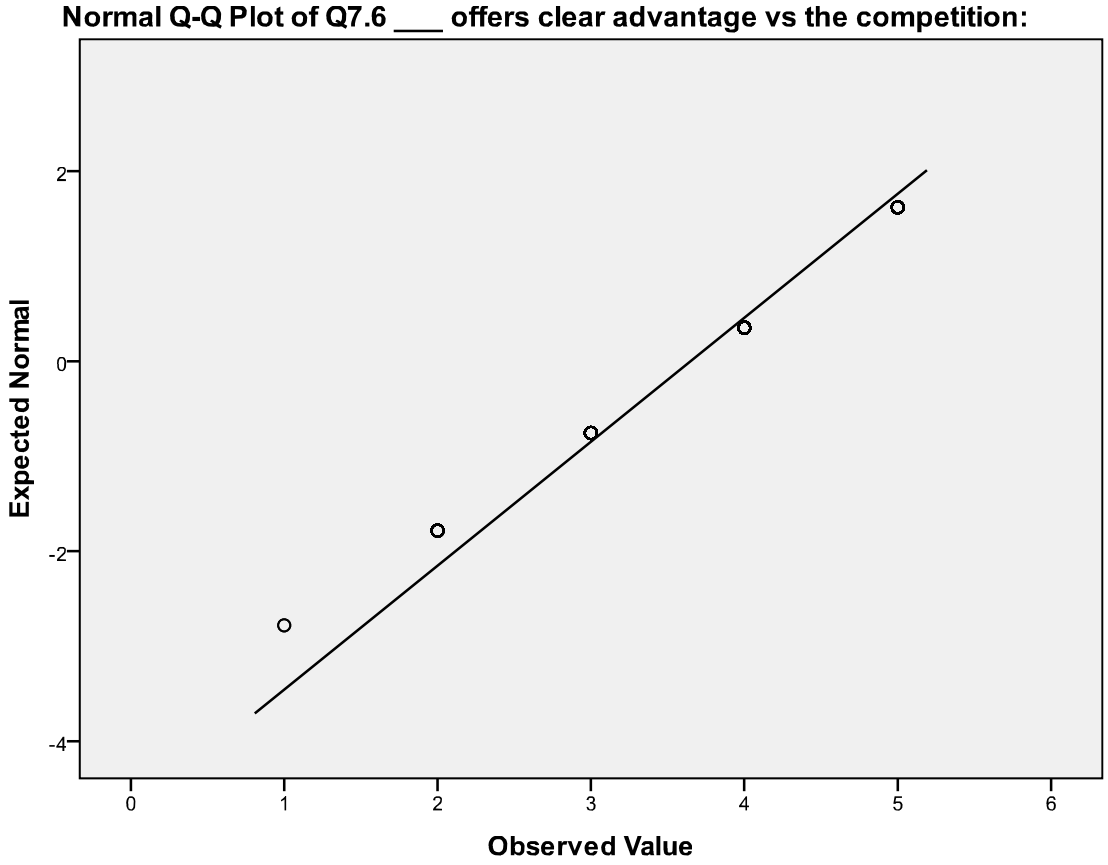
J.4 Q7.4 ‘I hold (airlines) in high regards’



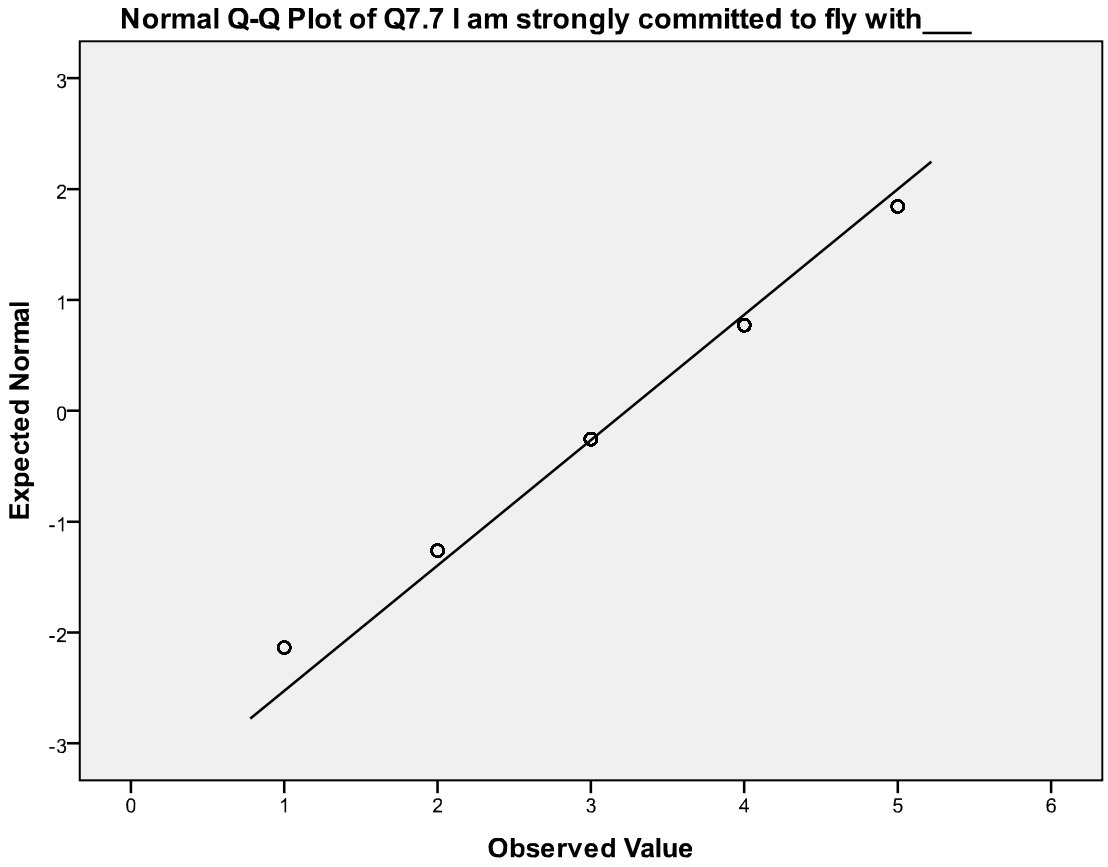
J.5 Q7.5 ‘(airlines) lives up to its promises’



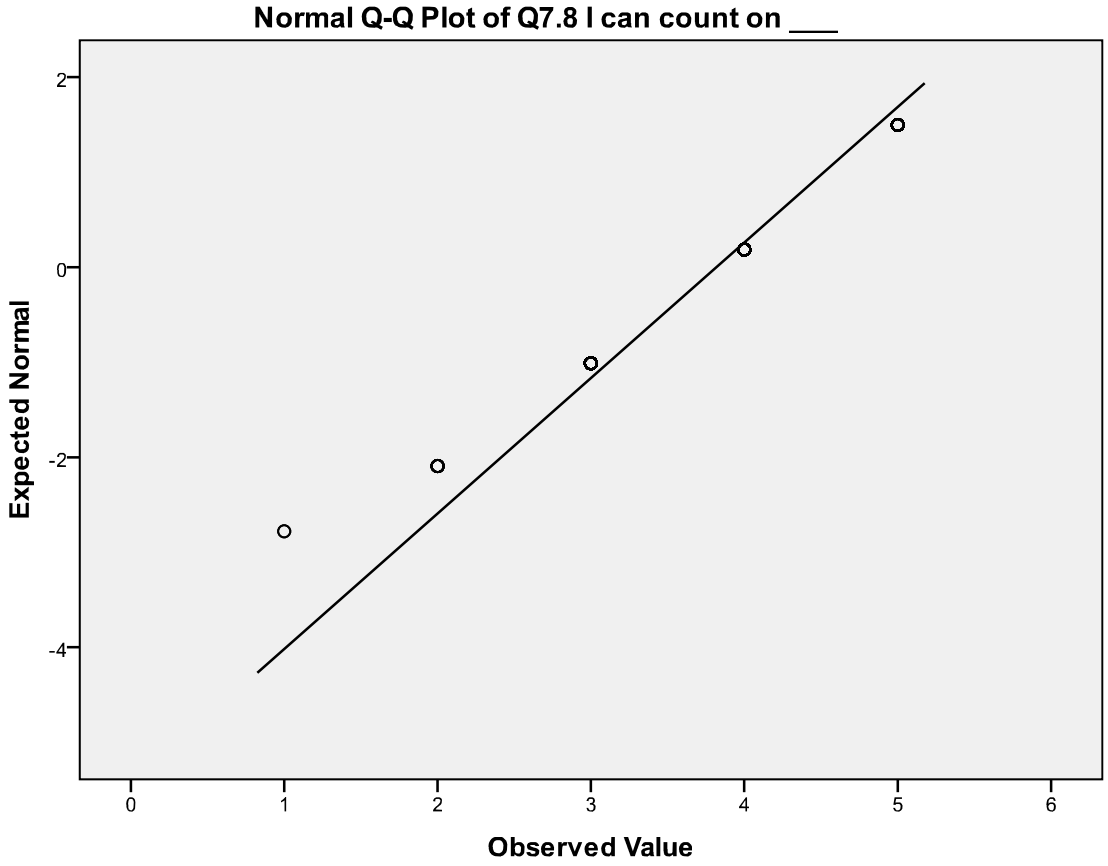
J.6 Q7.6 '(airlines) offers clear advantage vs the competition'



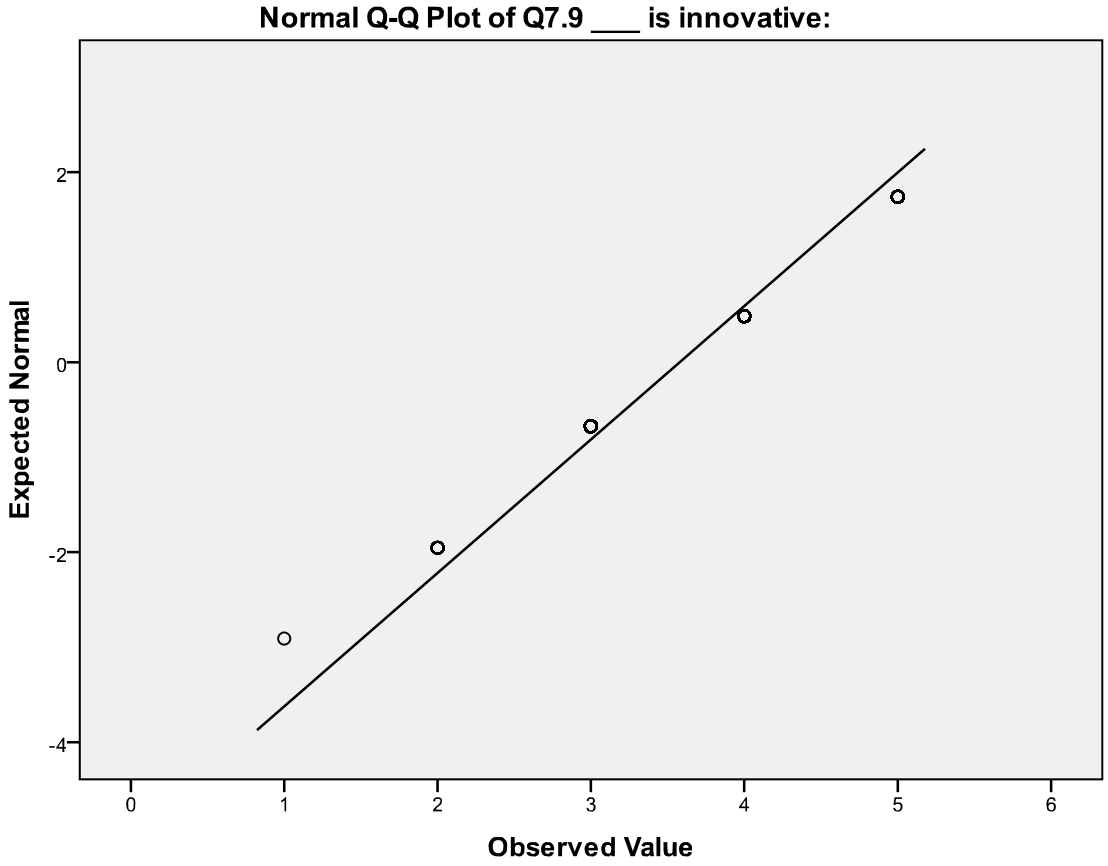
J.7 Q7.7 I am strongly committed to fly with(airlines)



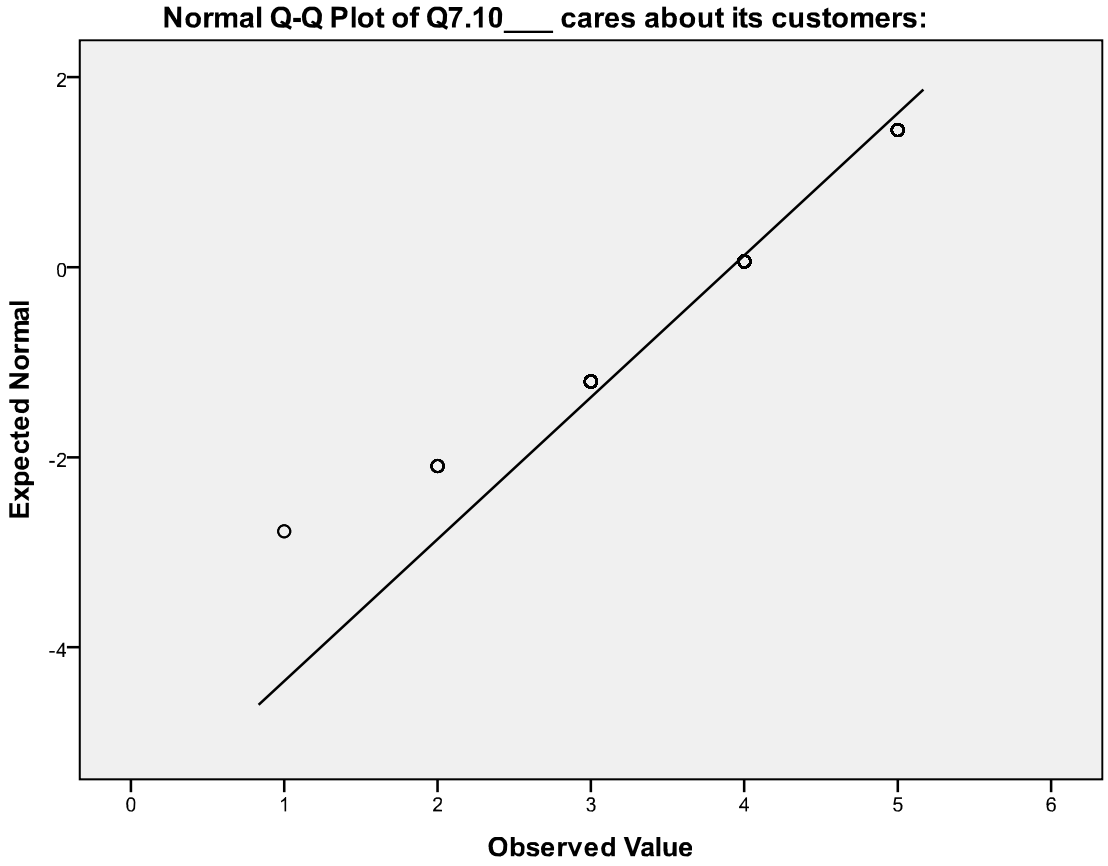
J.8 Q7.8 I can count on (airlines)



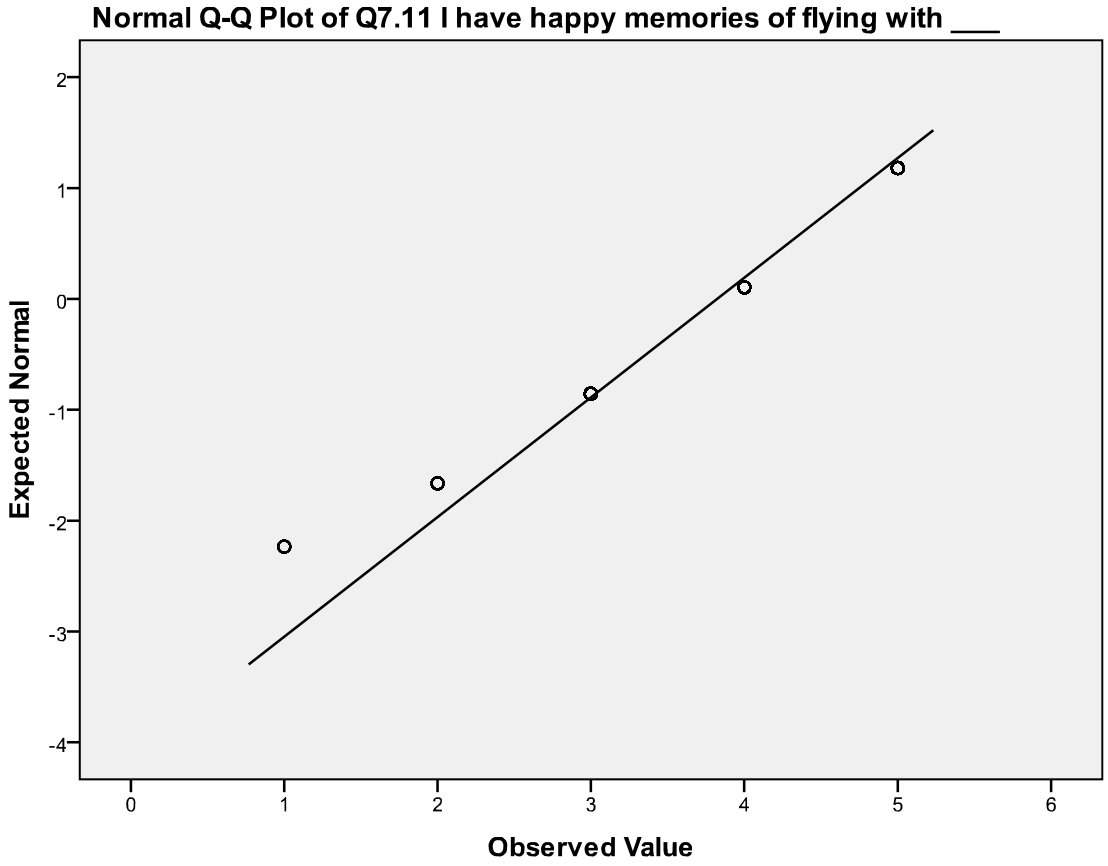
J.9 Q7.9 (airlines) is innovative:



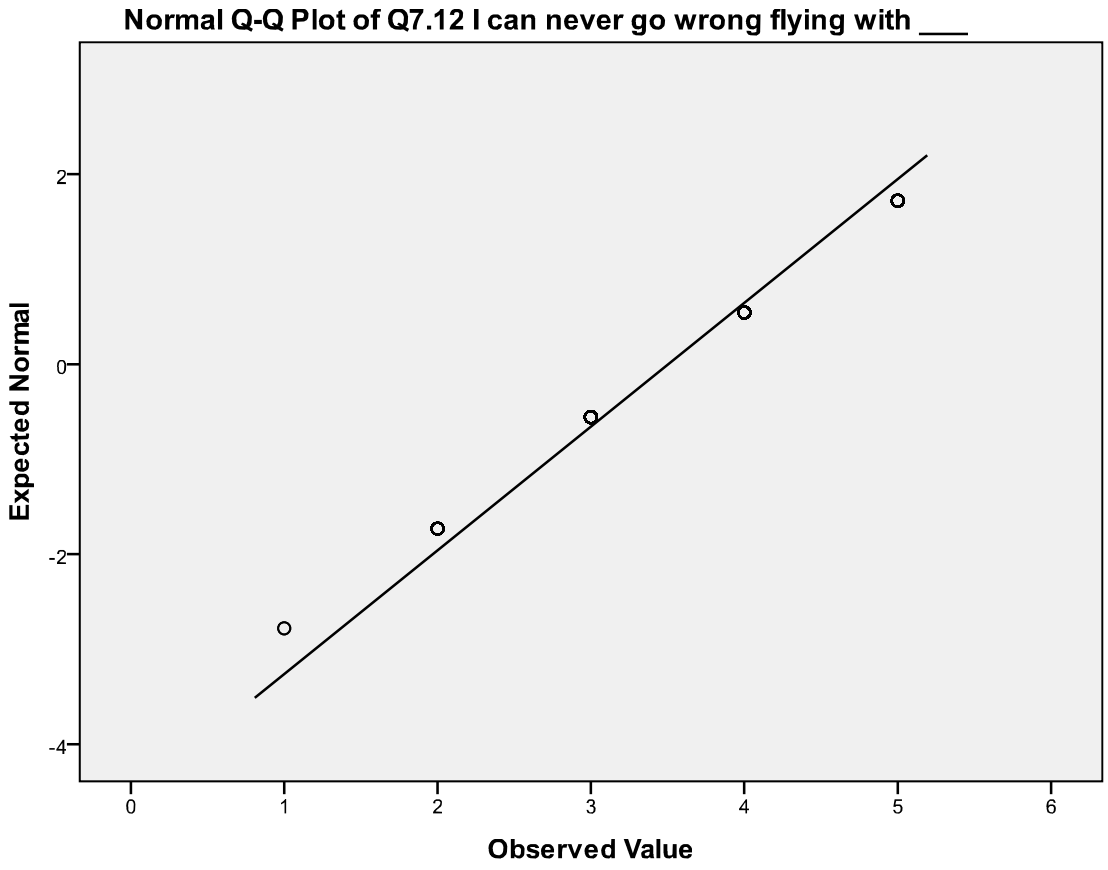
J.10 Q7.10(airlines)cares about its customers



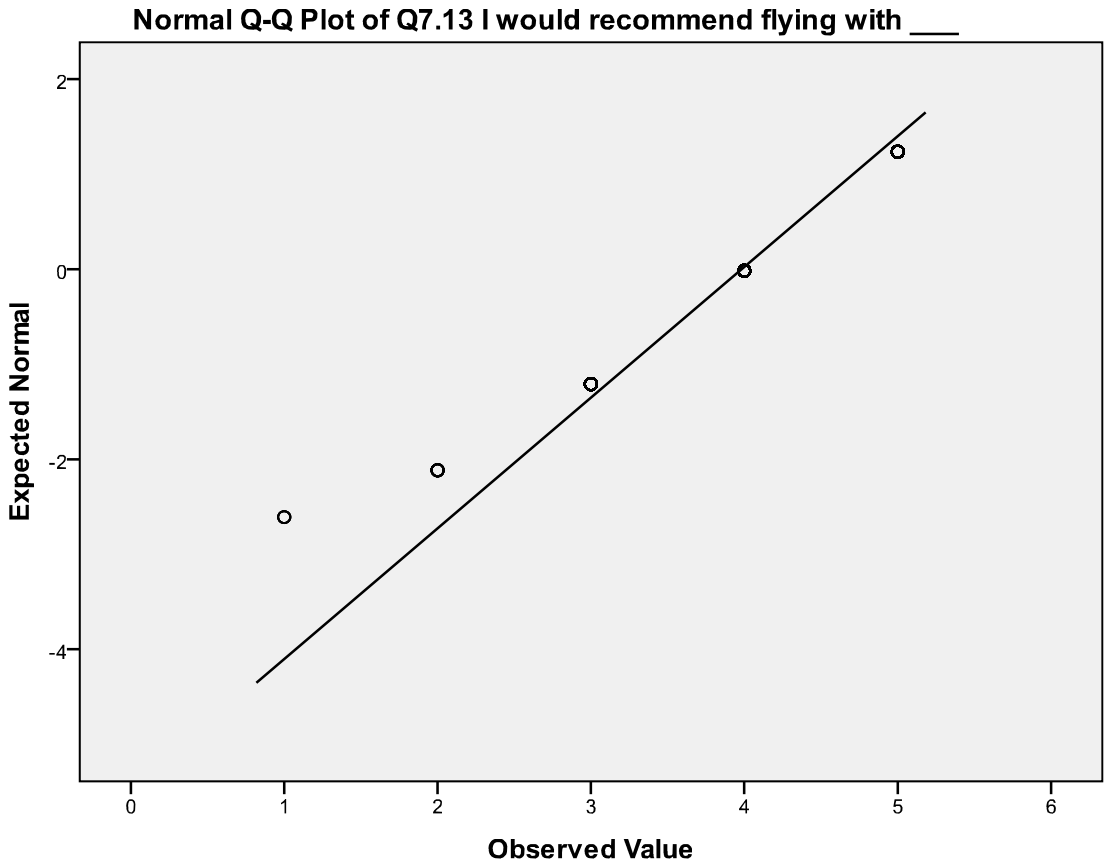
J.11 Q7.11 I have happy memories of flying with (airlines)



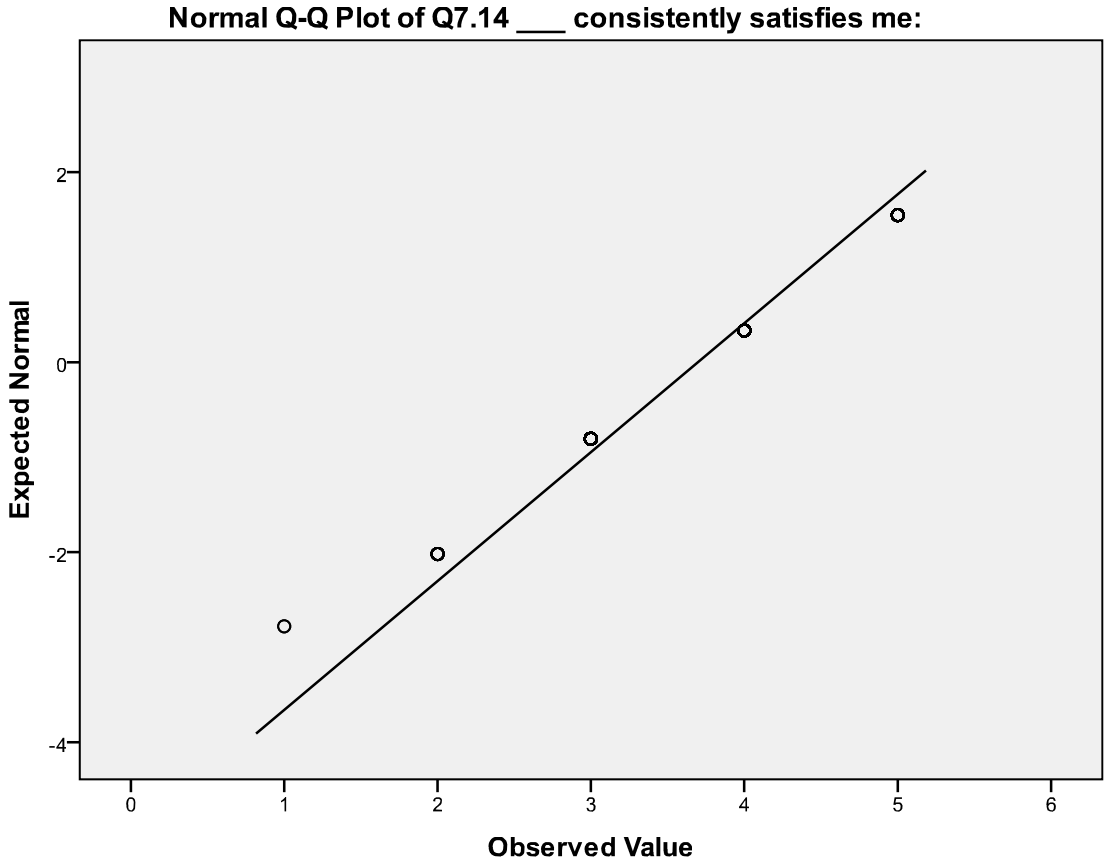
J.12 Q7.12 I can never go wrong flying with (airlines)



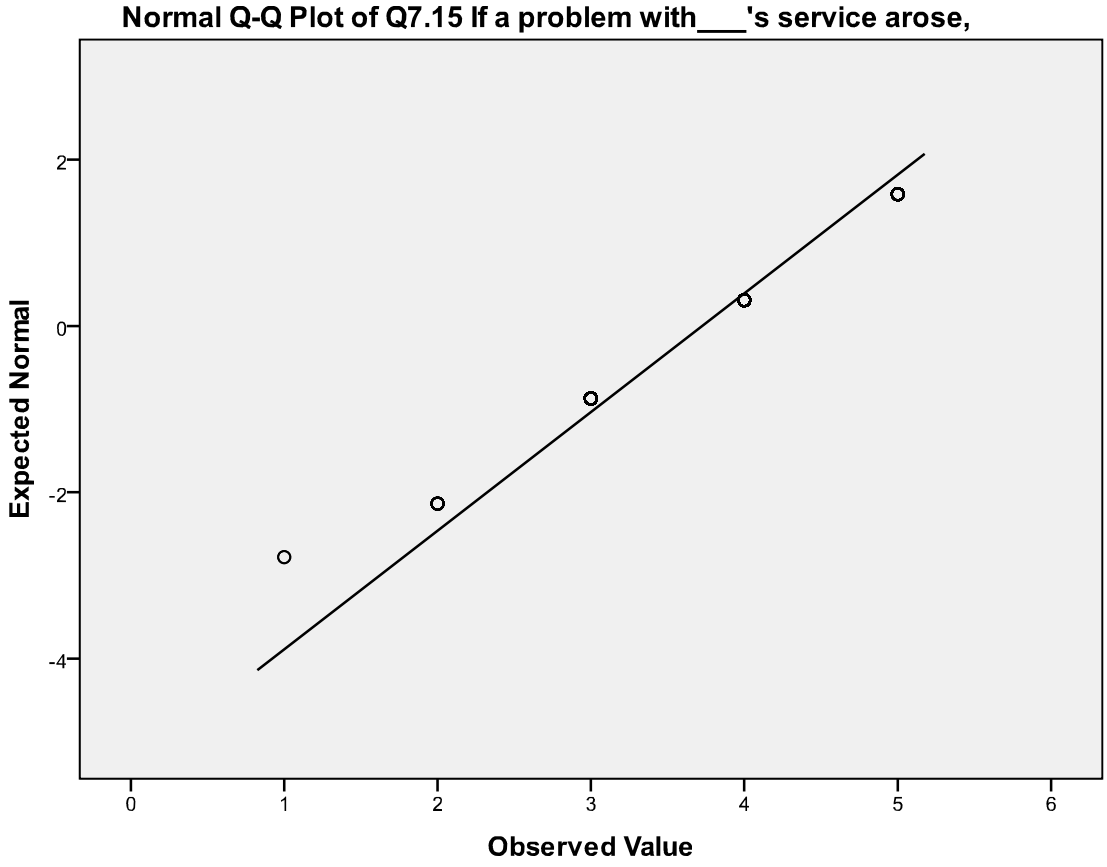
J.13 Q7.13 I would recommend flying with (airlines)



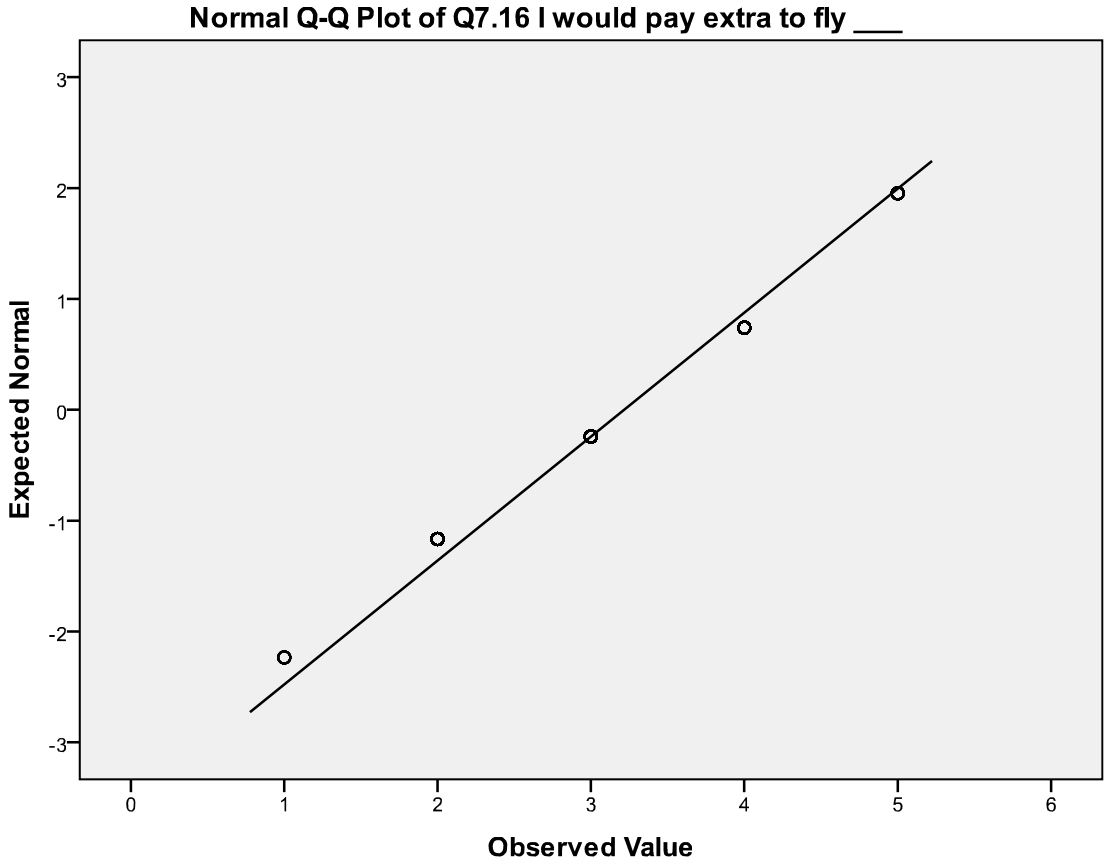
J.14 Q7.14 (airlines) consistently satisfies me



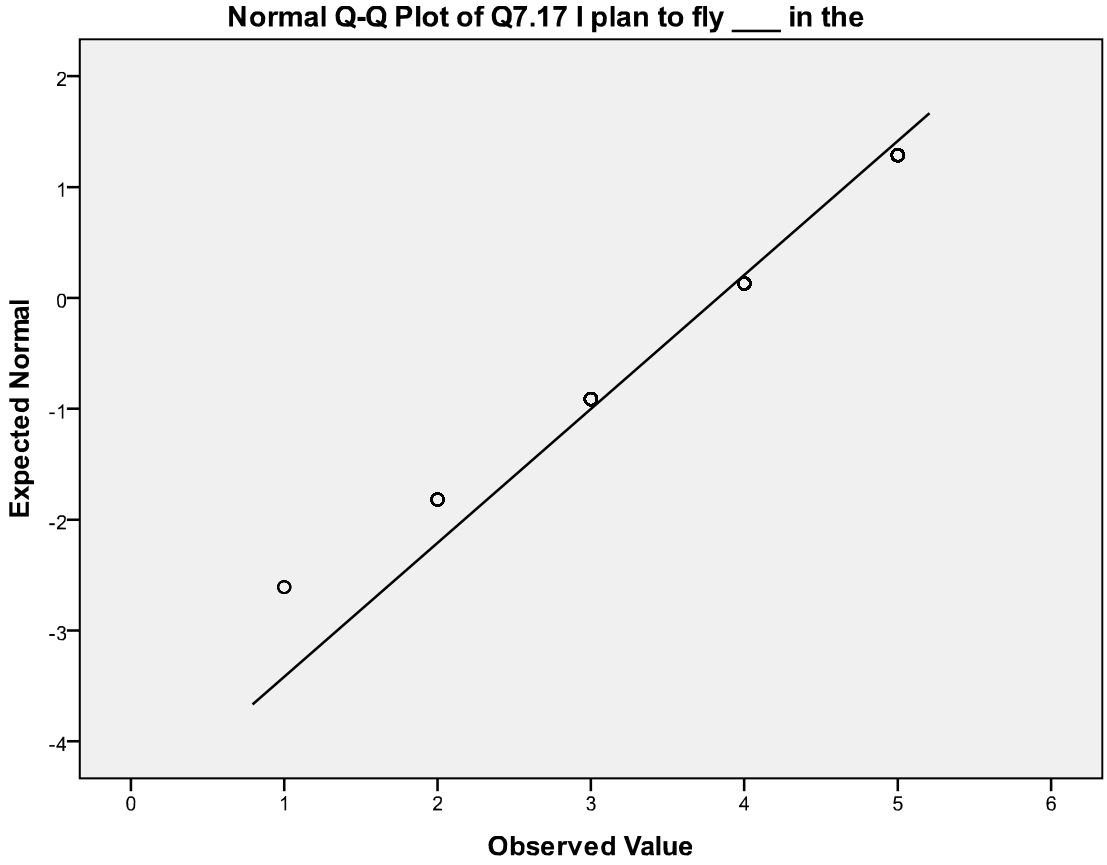
J.15 Q7.15 If a problem with (airline's) service arose, (airlines) would fix it quickly



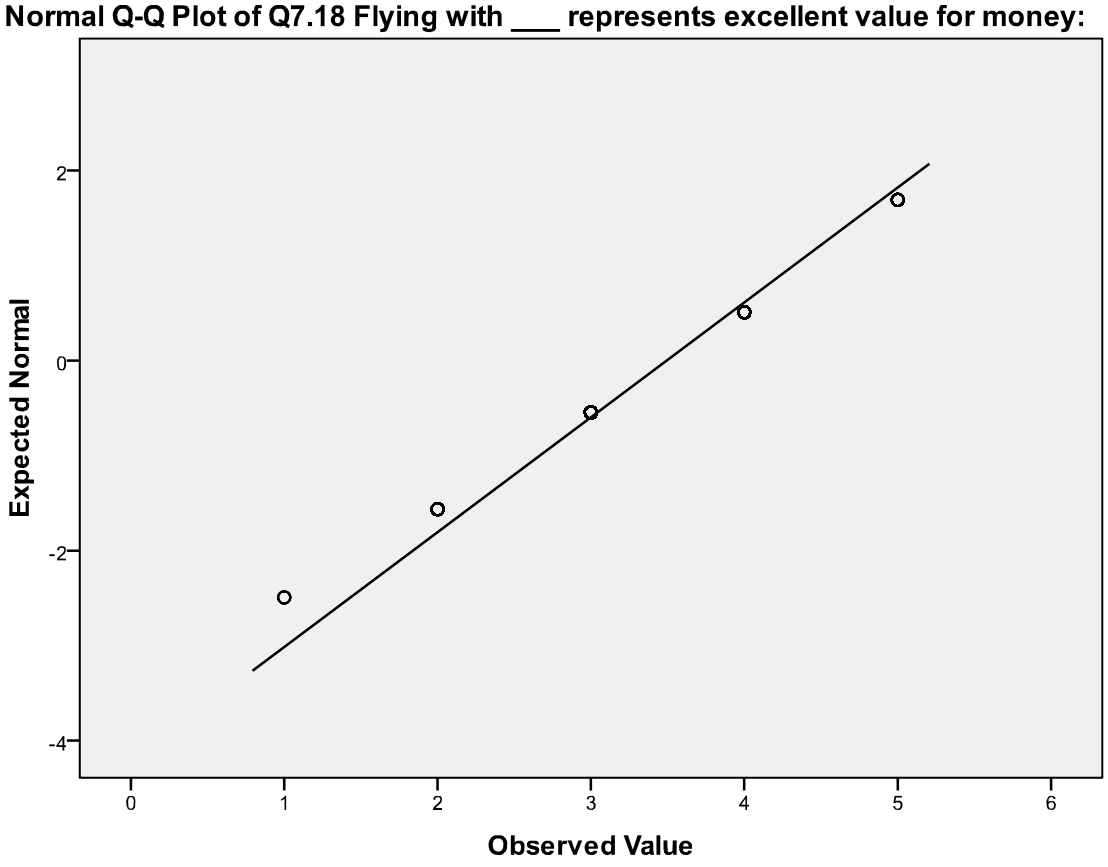
J.16 Q7.16 I would pay extra to fly (airlines)



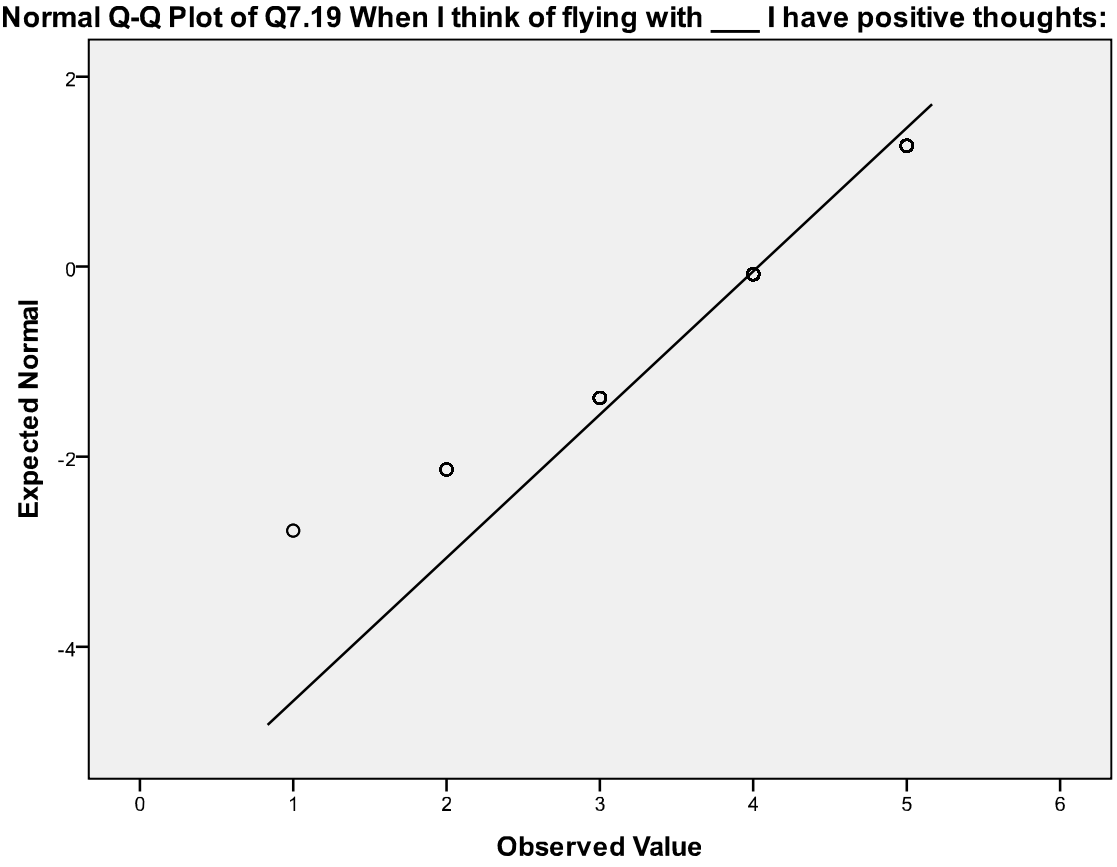
J.17 Q7.17 I plan to fly (airlines) in the future



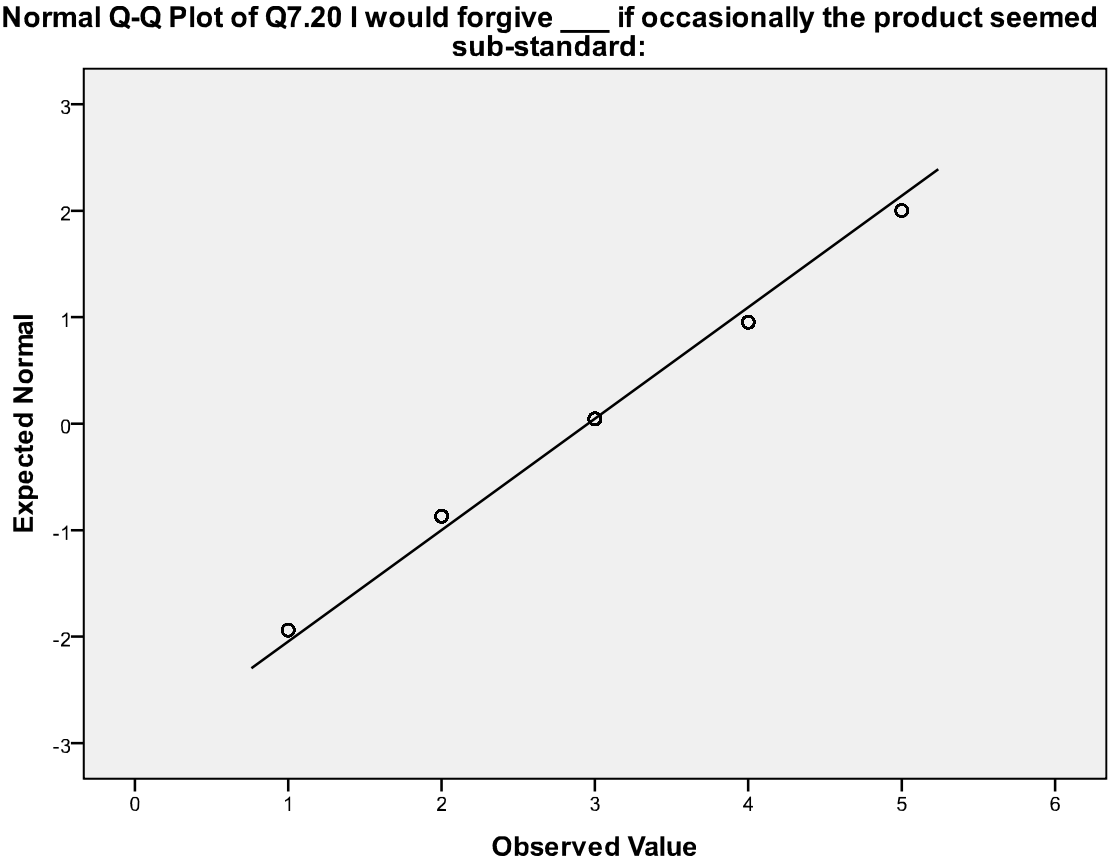
J.18 Q7.18 Flying with (airlines) represents excellent value for money:



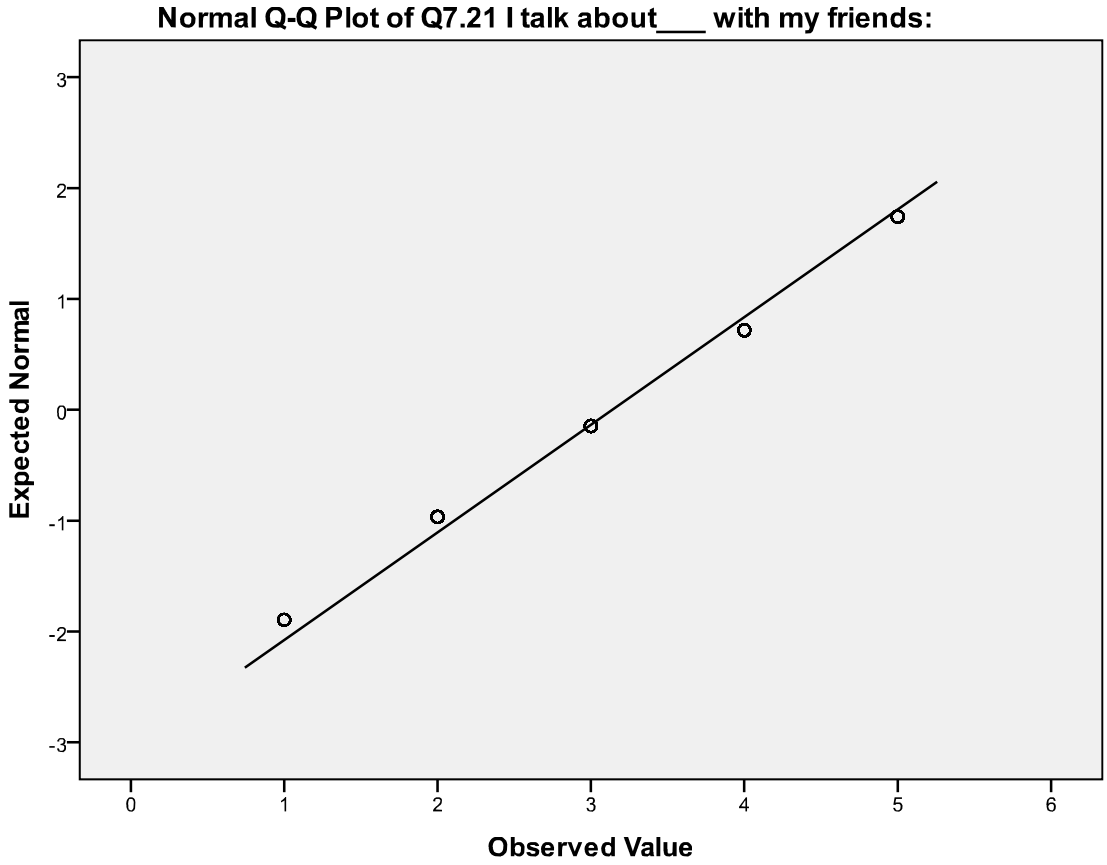
J.19 Q7.19 When I think of flying with (airlines)I have positive thoughts



J.20 Q7.20 I would forgive (airlines) if occasionally the product seemed sub-standard.



J.21 Q7.21 I talk about (airlines) with my friends



Appendix K **Testing of homogeneity of variance**

Test of Homogeneity of Variance					
		Levene Statistic	df1	df2	Sig.
Q7.1 I see a lot of advertisements about	Based on Mean	2.992	1	548	.084
	Based on Median	1.264	1	548	.261
	Based on Median and with adjusted df	1.264	1	483.682	.261
	Based on trimmed mean	2.794	1	548	.095
Q7.2 I understand what ___ is trying to tell me	Based on Mean	.276	1	548	.599
	Based on Median	.420	1	548	.517
	Based on Median and with adjusted df	.420	1	546.383	.517
	Based on trimmed mean	.272	1	548	.602
Q7.3 ___ stands out from its competitors	Based on Mean	4.993	1	548	.026
	Based on Median	3.897	1	548	.049
	Based on Median and with adjusted df	3.897	1	532.766	.049
	Based on trimmed mean	3.027	1	548	.082
Q7.4 I hold ___ in high regard	Based on Mean	10.496	1	548	.001
	Based on Median	13.796	1	548	.000
	Based on Median and with adjusted df	13.796	1	527.882	.000
	Based on trimmed mean	12.382	1	548	.000

Test of Homogeneity of Variance					
		Levene Statistic	df1	df2	Sig.
Q7.5___lives up to its promises	Based on Mean	3.538	1	548	.060
	Based on Median	2.909	1	548	.089
	Based on Median and with adjusted df	2.909	1	542.291	.089
	Based on trimmed mean	2.489	1	548	.115
Q7.6 ___ offers clear advantage vs the competition	Based on Mean	2.828	1	548	.093
	Based on Median	1.228	1	548	.268
	Based on Median and with adjusted df	1.228	1	544.867	.268
	Based on trimmed mean	2.452	1	548	.118
Q7.7 I am strongly committed to fly with___	Based on Mean	6.692	1	548	.010
	Based on Median	5.853	1	548	.016
	Based on Median and with adjusted df	5.853	1	546.590	.016
	Based on trimmed mean	7.265	1	548	.007
Q7.8 I can count on ___	Based on Mean	2.367	1	548	.125
	Based on Median	1.354	1	548	.245
	Based on Median and with adjusted df	1.354	1	535.717	.245
	Based on trimmed mean	1.050	1	548	.306

Test of Homogeneity of Variance					
		Levene Statistic	df1	df2	Sig.
Q7.9 ___ is innovative:	Based on Mean	.223	1	548	.637
	Based on Median	.077	1	548	.782
	Based on Median and with adjusted df	.077	1	547.998	.782
	Based on trimmed mean	.190	1	548	.663
Q7.10___ cares about its customers	Based on Mean	8.211	1	548	.004
	Based on Median	5.364	1	548	.021
	Based on Median and with adjusted df	5.364	1	540.001	.021
	Based on trimmed mean	7.099	1	548	.008
Q7.11 I have happy memories of flying with ___	Based on Mean	3.906	1	548	.049
	Based on Median	1.342	1	548	.247
	Based on Median and with adjusted df	1.342	1	547.019	.247
	Based on trimmed mean	5.084	1	548	.025
Q7.12 I can never go wrong flying with ___	Based on Mean	5.763	1	548	.017
	Based on Median	2.331	1	548	.127
	Based on Median and with adjusted df	2.331	1	543.653	.127
	Based on trimmed mean	5.774	1	548	.017

Test of Homogeneity of Variance					
		Levene Statistic	df1	df2	Sig.
Q7.13 I would recommend flying with ___	Based on Mean	3.038	1	548	.082
	Based on Median	4.871	1	548	.028
	Based on Median and with adjusted df	4.871	1	547.304	.028
	Based on trimmed mean	6.401	1	548	.012
Q7.14 ___ consistently satisfies me:	Based on Mean	.508	1	548	.476
	Based on Median	1.448	1	548	.229
	Based on Median and with adjusted df	1.448	1	547.325	.229
	Based on trimmed mean	.926	1	548	.336
Q7.15 If a problem with___'s service arose,___ would fix it quickly	Based on Mean	2.590	1	548	.108
	Based on Median	1.121	1	548	.290
	Based on Median and with adjusted df	1.121	1	539.926	.290
	Based on trimmed mean	1.709	1	548	.192
Q7.16 I would pay extra to fly ___	Based on Mean	2.947	1	548	.087
	Based on Median	2.479	1	548	.116
	Based on Median and with adjusted df	2.479	1	546.624	.116
	Based on trimmed mean	2.830	1	548	.093

Test of Homogeneity of Variance					
		Levene Statistic	df1	df2	Sig.
Q7.17 I plan to fly ___ in the future	Based on Mean	8.512	1	548	.004
	Based on Median	1.775	1	548	.183
	Based on Median and with adjusted df	1.775	1	542.903	.183
	Based on trimmed mean	8.420	1	548	.004
Q7.18 Flying with ___ represents excellent value for money	Based on Mean	4.677	1	548	.031
	Based on Median	1.007	1	548	.316
	Based on Median and with adjusted df	1.007	1	530.068	.316
	Based on trimmed mean	4.522	1	548	.034
Q7.19 When I think of flying with ___ I have positive thoughts	Based on Mean	3.930	1	548	.048
	Based on Median	8.007	1	548	.005
	Based on Median and with adjusted df	8.007	1	529.364	.005
	Based on trimmed mean	5.590	1	548	.018
Q7.20 I would forgive ___ if occasionally the product seemed sub-standard	Based on Mean	.650	1	548	.420
	Based on Median	1.645	1	548	.200
	Based on Median and with adjusted df	1.645	1	547.605	.200
	Based on trimmed mean	.636	1	548	.425

Test of Homogeneity of Variance					
		Levene Statistic	df1	df2	Sig.
Q7.21 I talk about___ with my friends	Based on Mean	1.562	1	548	.212
	Based on Median	.944	1	548	.332
	Based on Median and with adjusted df	.944	1	547.662	.332
	Based on trimmed mean	1.632	1	548	.202

Appendix L **Calculation of weighted average scores for airline brand awareness**

Recalled first	Frequency	Weighting	Scores	Recalled second	Frequency	Weighting	Sores	Recalled third	Frequency		Scores
British Airways	278	5	1390	British Airways	112	3	336	British Airways	95	1	95
EasyJet	63	5	315	EasyJet	89	3	267	EasyJet	87	1	87
Ryan Air	47	5	235	Virgin Atlantic Airways	84	3	252	Ryan Air	58	1	58
Virgin Atlantic Airways	36	5	180	Ryan Air	45	3	135	Qantas	53	1	53
Qantas	14	5	70	Qantas	44	3	132	Virgin Atlantic Airways	40	1	40
Copa Airlines	14	5	70	Emirates	28	3	84	Copa Airlines	31	1	31
Emirates	11	5	55	Copa Airlines	25	3	75	American Airlines	18	1	18
Germanwing	10	5	50	Germanwing	18	3	54	Emirates	17	1	17
Malaysia Airlines	9	5	45	American Airlines	14	3	42	Air India	15	1	15
Air Asia	9	5	45	Singapore Airlines	9	3	27	Germanwing	15	1	15
WestJet Airlines	7	5	35	WestJet Airlines	9	3	27	Singapore Airlines	14	1	14
Singapore Airlines	6	5	30	Flybe	8	3	24	Jet Airways	14	1	14
Lufthansa	5	5	25	Lufthansa	7	3	21	Lufthansa	13	1	13
American Airlines	5	5	25	Air France	7	3	21	Air France	10	1	10
Air India	4	5	20	Continental Airlines	7	3	21	Continental Airlines	10	1	10
Cathay Pacific	3	5	15	Iberia	5	3	15	Flybe	10	1	10
Jet Airways	3	5	15	Air Asia	5	3	15	Air Asia	8	1	8
Flybe	3	5	15	Thai Airways International	4	3	12	WestJet Airlines	5	1	5
Jet 2	3	5	15	Cathay Pacific	3	3	9	Air Europa	4	1	4
United Airlines	2	5	10	Air Canada	3	3	9	Cathay Pacific	3	1	3
US Airways	2	5	10	Qatar Airways	3	3	9	Air Canada	3	1	3
Turkish Airlines	2	5	10	Air Europa	3	3	9	Air Berlin	3	1	3
Qatar Airways	2	5	10	US Airways	2	3	6	Republic Airways	3	1	3
Air Europa	2	5	10	SAS Scandinavian Airlines	2	3	6	United Airlines	2	1	2
Air France	1	5	5	Aeroflot Airlines	2	3	6	SAS Scandinavian Airlines	2	1	2
Continental Airlines	1	5	5	Air New Zealand	2	3	6	Qatar Airways	2	1	2
China Eastern Airlines	1	5	5	Republic Airways	2	3	6	Austrian Airlines	2	1	2
Air Berlin	1	5	5	Royal Jordanian Airlines	2	3	6	Etihad Airways	2	1	2
Alitalia	1	5	5	Delta Airlines	1	3	3	Spicejet	2	1	2
Air New Zealand	1	5	5	Malaysia Airlines	1	3	3	Thai Airways International	1	1	1
EVA Air	1	5	5	TAP	1	3	3	Alitalia	1	1	1
Aer Lingus	1	5	5	Finnair	1	3	3	Malaysia Airlines	1	1	1
Republic Airways	1	5	5	Jet Airways	1	3	3	South African Airways	1	1	1
Spicejet	1	5	5	Total	549			Mesa Air Group	1	1	1
Total	550							Jet 2	1	1	1

Appendix M **Weighted average scores for airline brand awareness**

Airline brands	Total scores	Weighted average
British Airways	1821	607.000
EasyJet	669	223.000
Ryanair	428	142.667
Qantas	255	85.000
Virgin Atlantic	472	157.333
COPA	176	58.667
American Airlines	85	28.333
Emirates	156	52.000
Air India	35	11.667
Germanwings	69	23.000
Singapore Airlines	71	23.667
Jet Airways	32	10.667
Lufthansa	59	19.667
Air France	36	12.000
Continental	36	12.000
Flybe	49	16.333
Air Asia	68	22.667
Westjet	67	22.333
Air Europa	23	7.667
Cathay Pacific	27	9.000
Air Canada	12	4.000
Air Berlin	8	2.667
Republic Air	9	3.000
United	12	4.000

M.1 Weighted average airline brand awareness scores – in ranking order

Ranking order	Airline brands	Total weighted scores
1	British Airways	607
2	EasyJet	223
3	Virgin Atlantic	157
4	Ryanair	143
5	Qantas	85
6	COPA	59
7	Emirates	52
8	American Airlines	28
9	Singapore Airlines	24
10	Germanwings	23
11	Air Asia	23
12	Westjet	22
13	Lufthansa	20
14	Flybe	16
15	Air France	12
16	Continental	12
17	Air India	12
18	Jet Airways	11
19	Cathay Pacific	9
20	Air Europa	8
21	Air Canada	4
22	United Airlines	4
23	Republic Airlnies	3
24	Air Berlin	3

Appendix N **Principal component factor analysis**

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
Q7.1 I see a lot of advertisements about	3.28	.968	550
Q7.3 ___ stands out from its competitors:	3.89	.655	550
Q7.4 I hold ___ in high regard:	4.04	.633	550
Q7.5___lives up to its promises:	3.78	.682	550
Q7.6 ___ offers clear advantage vs the competition:	3.65	.767	550
Q7.7 I am strongly committed to fly with___	3.23	.884	550
Q7.8 I can count on ___	3.82	.701	550
Q7.9 ___ is innovative:	3.58	.712	550
Q7.10___ cares about its customers:	3.92	.670	550
Q7.11 I have happy memories of flying with _ __	3.82	.926	550
Q7.13 I would recommend flying with _ __	3.98	.727	550
Q7.14 ___ consistently satisfies me:	3.70	.737	550
Q7.15 If a problem with_ __'s service arose,	3.73	.701	550
Q7.17 I plan to fly ___ in the	3.83	.828	550
Q7.18 Flying with ___ represents excellent value for money:	3.49	.827	550
Q7.19 When I think of flying with ___ I have positive thoughts:	4.03	.663	550
Q7.21 I talk about___ with my friends:	3.14	1.030	550

		Q7.1 I see a lot of advertisements about	Q7.3 ___ stands out from its competitors:	Q7.4 I hold ___ in high regard:	Q7.5___lives up to its promises:	Q7.6 ___ offers clear advantage vs the competition:	Q7.7 I am strongly committed to fly with___	Q7.8 I can count on ___	Q7.9 ___ is innovative:	Q7.10___ cares about its customers:	Q7.11 I have happy memories of flying with ___	Q7.13 I would recommend flying with ___	Q7.14 ___ consistently satisfies me:	Q7.15 If a problem with___'s service arose,	Q7.17 I plan to fly___ in the	Q7.18 Flying with ___ represents excellent value for money:	Q7.19 When I think of flying with ___ I have positive thoughts:	Q7.21 I talk about___ with my friends:
Correlation	Q7.1 I see a lot of advertisements about	1.000	.136	.151	.105	.174	.152	.082	.207	.098	.004	.051	.074	.160	.146	.082	.133	.202
	Q7.3 ___ stands out from its competitors:	.136	1.000	.512	.464	.489	.364	.466	.439	.472	.312	.451	.365	.423	.370	.326	.411	.313
	Q7.4 I hold ___ in high regard:	.151	.512	1.000	.540	.443	.367	.547	.407	.588	.401	.584	.453	.490	.407	.368	.639	.321
	Q7.5___lives up to its promises:	.105	.464	.540	1.000	.502	.468	.585	.488	.589	.470	.569	.531	.538	.410	.467	.511	.395
	Q7.6 ___ offers clear advantage vs the competition:	.174	.489	.443	.502	1.000	.462	.454	.450	.532	.302	.485	.431	.401	.359	.493	.409	.408
	Q7.7 I am strongly committed to fly with___	.152	.364	.367	.468	.462	1.000	.466	.346	.353	.336	.418	.470	.351	.461	.485	.323	.482
	Q7.8 I can count on ___	.082	.466	.547	.585	.454	.466	1.000	.394	.530	.455	.576	.584	.532	.405	.434	.518	.376
	Q7.9 ___ is innovative:	.207	.439	.407	.488	.450	.346	.394	1.000	.423	.240	.344	.339	.407	.320	.338	.338	.309
	Q7.10___ cares about its customers:	.098	.472	.588	.589	.532	.353	.530	.423	1.000	.399	.536	.480	.487	.349	.427	.507	.302
	Q7.11 I have happy memories of flying with ___	.004	.312	.401	.470	.302	.336	.455	.240	.399	1.000	.548	.604	.292	.436	.360	.348	.338
	Q7.13 I would recommend flying with ___	.051	.451	.584	.569	.485	.418	.576	.344	.536	.548	1.000	.534	.445	.419	.442	.531	.405
	Q7.14 ___ consistently satisfies me:	.074	.365	.453	.531	.431	.470	.584	.339	.480	.604	.534	1.000	.424	.512	.437	.423	.409
	Q7.15 If a problem with___'s service arose,	.160	.423	.490	.538	.401	.351	.532	.407	.487	.292	.445	.424	1.000	.318	.294	.435	.318
	Q7.17 I plan to fly___ in the	.146	.370	.407	.410	.359	.461	.405	.320	.349	.436	.419	.512	.318	1.000	.397	.372	.372
	Q7.18 Flying with ___ represents excellent value for money:	.082	.326	.368	.467	.493	.485	.434	.338	.427	.360	.442	.437	.294	.397	1.000	.339	.400
	Q7.19 When I think of flying with ___ I have positive thoughts:	.133	.411	.639	.511	.409	.323	.518	.338	.507	.348	.531	.423	.435	.372	.339	1.000	.319
	Q7.21 I talk about___ with my friends:	.202	.313	.321	.395	.408	.482	.376	.309	.302	.338	.405	.409	.318	.372	.400	.319	1.000
Sig. (1-tailed)	Q7.1 I see a lot of advertisements about		.001	.000	.007	.000	.000	.027	.000	.011	.461	.115	.041	.000	.000	.027	.001	.000
	Q7.3 ___ stands out from its competitors:	.001		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Q7.4 I hold ___ in high regard:	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Q7.5___lives up to its promises:	.007	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Q7.6 ___ offers clear advantage vs the competition:	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Q7.7 I am strongly committed to fly with___	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Q7.8 I can count on ___	.027	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Q7.9 ___ is innovative:	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000
	Q7.10___ cares about its customers:	.011	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000
	Q7.11 I have happy memories of flying with ___	.461	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000
	Q7.13 I would recommend flying with ___	.115	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000
	Q7.14 ___ consistently satisfies me:	.041	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000
	Q7.15 If a problem with___'s service arose,	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000
	Q7.17 I plan to fly___ in the	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000
	Q7.18 Flying with ___ represents excellent value for money:	.027	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000
	Q7.19 When I think of flying with ___ I have positive thoughts:	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000
	Q7.21 I talk about___ with my friends:	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	

Inverse of Correlation Matrix

	Q7.1 I see a lot of advertisements about	Q7.3 ___ stands out from its competitors:	Q7.4 I hold ___ in high regard:	Q7.5___lives up to its promises:	Q7.6 ___ offers clear advantage vs the competition:	Q7.7 I am strongly committed to fly with___	Q7.8 I can count on ___	Q7.9 ___ is innovative:	Q7.10___ cares about its customers:	Q7.11 I have happy memories of flying with ___	Q7.13 I would recommend flying with ___	Q7.14 ___ consistently satisfies me:	Q7.15 If a problem with___'s service arose,	Q7.17 I plan to fly___ in the	Q7.18 Flying with ___ represents excellent value for money:	Q7.19 When I think of flying with ___ I have positive thoughts:	Q7.21 I talk about___ with my friends:
Q7.1 I see a lot of advertisements about	1.113	-.006	-.096	.055	-.097	-.050	.069	-.147	.034	.084	.126	.034	-.097	-.088	.048	-.057	-.172
Q7.3 ___ stands out from its competitors:	-.006	1.690	-.311	-.045	-.317	-.052	-.168	-.238	-.124	-.022	-.092	.109	-.113	-.149	.073	.001	-.019
Q7.4 I hold ___ in high regard:	-.096	-.311	2.354	-.046	.060	-.010	-.148	-.100	-.427	-.060	-.384	.034	-.170	-.120	.019	-.732	.063
Q7.5___lives up to its promises:	.055	-.045	-.046	2.333	-.075	-.192	-.221	-.337	-.364	-.247	-.193	-.099	-.348	.020	-.168	-.201	-.045
Q7.6 ___ offers clear advantage vs the competition:	-.097	-.317	.060	-.075	1.921	-.212	.025	-.220	-.379	.163	-.221	-.105	-.016	.031	-.335	-.057	-.155
Q7.7 I am strongly committed to fly with___	-.050	-.052	-.010	-.192	-.212	1.780	-.216	-.025	.124	.084	-.023	-.186	-.021	-.293	-.303	.098	-.352
Q7.8 I can count on ___	.069	-.168	-.148	-.221	.025	-.216	2.226	-.036	-.107	-.058	-.268	-.459	-.354	.057	-.109	-.234	-.001
Q7.9 ___ is innovative:	-.147	-.238	-.100	-.337	-.220	-.025	-.036	1.553	-.096	.075	.095	-.004	-.140	-.070	-.057	.041	-.049
Q7.10___ cares about its customers:	.034	-.124	-.427	-.364	-.379	.124	-.107	-.096	2.110	-.064	-.130	-.155	-.183	.070	-.156	-.133	.114
Q7.11 I have happy memories of flying with ___	.084	-.022	-.060	-.247	.163	.084	-.058	.075	-.064	1.874	-.498	-.695	.145	-.227	-.047	.081	-.098
Q7.13 I would recommend flying with ___	.126	-.092	-.384	-.193	-.221	-.023	-.268	.095	-.130	-.498	2.261	-.059	-.065	-.022	-.111	-.241	-.159
Q7.14 ___ consistently satisfies me:	.034	.109	.034	-.099	-.105	-.186	-.459	-.004	-.155	-.695	-.059	2.246	-.127	-.357	-.069	-.031	-.109
Q7.15 If a problem with___'s service arose,	-.097	-.113	-.170	-.348	-.016	-.021	-.354	-.140	-.183	.145	-.065	-.127	1.726	.007	.135	-.058	-.063
Q7.17 I plan to fly___ in the	-.088	-.149	-.120	.020	.031	-.293	.057	-.070	.070	-.227	-.022	-.357	.007	1.624	-.144	-.112	-.080
Q7.18 Flying with ___ represents excellent value for money:	.048	.073	.019	-.168	-.335	-.303	-.109	-.057	-.156	-.047	-.111	-.069	.135	-.144	1.660	.012	-.152
Q7.19 When I think of flying with ___ I have positive thoughts:	-.057	.001	-.732	-.201	-.057	.098	-.234	.041	-.133	.081	-.241	-.031	-.058	-.112	.012	1.940	-.063
Q7.21 I talk about___ with my friends:	-.172	-.019	.063	-.045	-.155	-.352	-.001	-.049	.114	-.098	-.159	-.109	-.063	-.080	-.152	-.063	1.525

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.949
Bartlett's Test of Sphericity	Approx. Chi-Square	4220.986
	df	136
	Sig.	.000

Anti-image Matrices

		Q7.1 I see a lot of advertisements about	Q7.3 ___ stands out from its competitors:	Q7.4 I hold ___ in high regard:	Q7.5___lives up to its promises:	Q7.6 ___ offers clear advantage vs the competition:	Q7.7 I am strongly committed to fly with___	Q7.8 I can count on ___	Q7.9 ___ is innovative:	Q7.10___ cares about its customers:	Q7.11 I have happy memories of flying with ___	Q7.13 I would recommend flying with ___	Q7.14 ___ consistently satisfies me:	Q7.15 If a problem with___'s service arose,	Q7.17 I plan to fly ___ in the	Q7.18 Flying with ___ represents excellent value for money.	Q7.19 When I think of flying with ___ I have positive thoughts:	Q7.21 I talk about___ with my friends:
Anti-image Covariance	Q7.1 I see a lot of advertisements about	.899	-.003	-.037	.021	-.045	-.025	.028	-.085	.015	.040	.050	.013	-.051	-.049	.026	-.027	-.101
	Q7.3 ___ stands out from its competitors:	-.003	.592	-.078	-.011	-.098	-.017	-.045	-.091	-.035	-.007	-.024	.029	-.039	-.054	.026	.000	-.007
	Q7.4 I hold ___ in high regard:	-.037	-.078	.425	-.008	.013	-.002	-.028	-.027	-.086	-.014	-.072	.006	-.042	-.031	.005	-.160	.017
	Q7.5___lives up to its promises:	.021	-.011	-.008	.429	-.017	-.046	-.043	-.093	-.074	-.056	-.037	-.019	-.086	.005	-.044	-.044	-.013
	Q7.6 ___ offers clear advantage vs the competition:	-.045	-.098	.013	-.017	.520	-.062	.006	-.074	-.093	.045	-.051	-.024	-.005	.010	-.105	-.015	-.053
	Q7.7 I am strongly committed to fly with___	-.025	-.017	-.002	-.046	-.062	.562	-.054	-.009	.033	.025	-.006	-.046	-.007	-.101	-.102	.028	-.130
	Q7.8 I can count on ___	.028	-.045	-.028	-.043	.006	-.054	.449	-.010	-.023	-.014	-.053	-.092	-.092	.016	-.030	-.054	.000
	Q7.9 ___ is innovative:	-.085	-.091	-.027	-.093	-.074	-.009	-.010	.644	-.029	.026	.027	-.001	-.052	-.028	-.022	.014	-.021
	Q7.10___ cares about its customers:	.015	-.035	-.086	-.074	-.093	.033	-.023	-.029	.474	-.016	-.027	-.033	-.050	.020	-.044	-.033	.035
	Q7.11 I have happy memories of flying with ___	.040	-.007	-.014	-.056	.045	.025	-.014	.026	-.016	.534	-.118	-.165	.045	-.075	-.015	.022	-.034
	Q7.13 I would recommend flying with ___	.050	-.024	-.072	-.037	-.051	-.006	-.053	.027	-.027	-.118	.442	-.012	-.017	-.006	-.030	-.055	-.046
	Q7.14 ___ consistently satisfies me:	.013	.029	.006	-.019	-.024	-.046	-.092	-.001	-.033	-.165	-.012	.445	-.033	-.098	-.018	-.007	-.032
	Q7.15 If a problem with___'s service arose,	-.051	-.039	-.042	-.086	-.005	-.007	-.092	-.052	-.050	.045	-.017	-.033	.579	.003	.047	-.017	-.024
	Q7.17 I plan to fly ___ in the	-.049	-.054	-.031	.005	.010	-.101	.016	-.028	.020	-.075	-.006	-.098	.003	.616	-.053	-.035	-.032
	Q7.18 Flying with ___ represents excellent value for money.	.026	.026	.005	-.044	-.105	-.102	-.030	-.022	-.044	-.015	-.030	-.018	.047	-.053	.603	.004	-.060
	Q7.19 When I think of flying with ___ I have positive thoughts:	-.027	.000	-.160	-.044	-.015	.028	-.054	.014	-.033	.022	-.055	-.007	-.017	-.035	.004	.515	-.021
	Q7.21 I talk about___ with my friends:	-.101	-.007	.017	-.013	-.053	-.130	.000	-.021	.035	-.034	-.046	-.032	-.024	-.032	-.060	-.021	.656
Anti-image Correlation	Q7.1 I see a lot of advertisements about	.815[a]	-.004	-.059	.034	-.067	-.036	.044	-.112	.023	.058	.079	.021	-.070	-.065	.036	-.039	-.132
	Q7.3 ___ stands out from its competitors:	-.004	.960[a]	-.156	-.023	-.176	-.030	-.087	-.147	-.066	-.012	-.047	.056	-.066	-.090	.044	.001	-.012
	Q7.4 I hold ___ in high regard:	-.059	-.156	.938[a]	-.020	.028	-.005	-.065	-.052	-.192	-.029	-.166	.015	-.084	-.061	.009	-.342	.033
	Q7.5___lives up to its promises:	.034	-.023	-.020	.962[a]	-.036	-.094	-.097	-.177	-.164	-.118	-.084	-.043	-.174	.010	-.086	-.095	-.024
	Q7.6 ___ offers clear advantage vs the competition:	-.067	-.176	.028	-.036	.947[a]	-.115	.012	-.127	-.188	.086	-.106	-.051	-.009	.018	-.188	-.030	-.091
	Q7.7 I am strongly committed to fly with___	-.036	-.030	-.005	-.094	-.115	.942[a]	-.108	-.015	.064	.046	-.012	-.093	-.012	-.172	-.176	.053	-.214
	Q7.8 I can count on ___	.044	-.087	-.065	-.097	.012	-.108	.962[a]	-.019	-.050	-.028	-.119	-.205	-.181	.030	-.057	-.112	.000
	Q7.9 ___ is innovative:	-.112	-.147	-.052	-.177	-.127	-.015	-.019	.954[a]	-.053	.044	.051	-.002	-.085	-.044	-.036	.023	-.032
	Q7.10___ cares about its customers:	.023	-.066	-.192	-.164	-.188	.064	-.050	-.053	.958[a]	-.032	-.059	-.071	-.096	.038	-.083	-.066	.064
	Q7.11 I have happy memories of flying with ___	.058	-.012	-.029	-.118	.086	.046	-.028	.044	-.032	.912[a]	-.242	-.339	.081	-.130	-.027	.042	-.058
	Q7.13 I would recommend flying with ___	.079	-.047	-.166	-.084	-.106	-.012	-.119	.051	-.059	-.242	.958[a]	-.026	-.033	-.012	-.058	-.115	-.086
	Q7.14 ___ consistently satisfies me:	.021	.056	.015	-.043	-.051	-.093	-.205	-.002	-.071	-.339	-.026	.937[a]	-.065	-.187	-.036	-.015	-.059
	Q7.15 If a problem with___'s service arose,	-.070	-.066	-.084	-.174	-.009	-.012	-.181	-.085	-.096	.081	-.033	-.065	.958[a]	.004	.080	-.032	-.039
	Q7.17 I plan to fly ___ in the	-.065	-.090	-.061	.010	.018	-.172	.030	-.044	.038	-.130	-.012	-.187	.004	.953[a]	-.088	-.063	-.051
	Q7.18 Flying with ___ represents excellent value for money.	.036	.044	.009	-.086	-.188	-.176	-.057	-.036	-.083	-.027	-.058	-.036	.080	-.088	.955[a]	.007	-.095
	Q7.19 When I think of flying with ___ I have positive thoughts:	-.039	.001	-.342	-.095	-.030	.053	-.112	.023	-.066	.042	-.115	-.015	-.032	-.063	.007	.944[a]	-.037
	Q7.21 I talk about___ with my friends:	-.132	-.012	.033	-.024	-.091	-.214	.000	-.032	.064	-.058	-.086	-.059	-.039	-.051	-.095	-.037	.951[a]

a. Measures of Sampling Adequacy(MSA)

Communalities

	Initial	Extraction
Q7.1 I see a lot of advertisements about	1.000	.623
Q7.3 ___ stands out from its competitors:	1.000	.504
Q7.4 I hold ___ in high regard:	1.000	.667
Q7.5___lives up to its promises:	1.000	.628
Q7.6 ___ offers clear advantage vs the competition:	1.000	.536
Q7.7 I am strongly committed to fly with___	1.000	.615
Q7.8 I can count on ___	1.000	.614
Q7.9 ___ is innovative:	1.000	.502
Q7.10___ cares about its customers:	1.000	.623
Q7.11 I have happy memories of flying with ___	1.000	.628
Q7.13 I would recommend flying with ___	1.000	.639
Q7.14 ___ consistently satisfies me:	1.000	.654
Q7.15 If a problem with___'s service arose,	1.000	.524
Q7.17 I plan to fly ___ in the	1.000	.503
Q7.18 Flying with ___ represents excellent value for money:	1.000	.505
Q7.19 When I think of flying with ___ I have positive thoughts:	1.000	.567
Q7.21 I talk about___ with my friends:	1.000	.562

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.563	44.486	44.486	7.563	44.486	44.486	4.858	28.579	28.579
2	1.189	6.992	51.478	1.189	6.992	51.478	3.748	22.050	50.629
3	1.141	6.714	58.192	1.141	6.714	58.192	1.286	7.563	58.192
4	.848	4.987	63.179						
5	.686	4.034	67.213						
6	.666	3.916	71.129						
7	.628	3.693	74.822						
8	.589	3.465	78.288						
9	.548	3.222	81.510						
10	.476	2.803	84.312						
11	.454	2.673	86.985						
12	.430	2.528	89.513						
13	.413	2.427	91.940						
14	.381	2.238	94.179						
15	.368	2.166	96.344						
16	.313	1.841	98.185						
17	.308	1.815	100.000						

Extraction Method: Principal Component Analysis.

	Component		
	1	2	3
Q7.5___lives up to its promises:	.785	-.017	-.107
Q7.8 I can count on ___	.767	-.111	-.116
Q7.13 I would recommend flying with ___	.762	-.216	-.106
Q7.4 I hold ___ in high regard:	.745	.054	-.331
Q7.10___ cares about its customers:	.735	.027	-.285
Q7.14 ___ consistently satisfies me:	.731	-.307	.156
Q7.6 ___ offers clear advantage vs the competition:	.697	.211	.075
Q7.19 When I think of flying with ___ I have positive thoughts:	.684	.026	-.314
Q7.15 If a problem with___'s service arose,	.657	.172	-.251
Q7.3 ___ stands out from its competitors:	.655	.206	-.180
Q7.7 I am strongly committed to fly with___	.648	.024	.441
Q7.18 Flying with ___ represents excellent value for money:	.634	-.071	.312
Q7.17 I plan to fly ___ in the	.625	-.119	.314
Q7.11 I have happy memories of flying with ___	.621	-.481	.106
Q7.9 ___ is innovative:	.597	.379	-.050
Q7.21 I talk about___ with my friends:	.582	.083	.466
Q7.1 I see a lot of advertisements about	.200	.717	.263
Extraction Method: Principal Component Analysis.			
a. 3 components extracted.			

Reproduced Correlations

		Q7.1 I see a lot of advertisements about	Q7.3 ___ stands out from its competitors:	Q7.4 I hold ___ in high regard:	Q7.5___lives up to its promises:	Q7.6 ___ offers clear advantage vs the competition:	Q7.7 I am strongly committed to fly with___	Q7.8 I can count on___	Q7.9 ___ is innovative:	Q7.10___ cares about its customers:	Q7.11 I have happy memories of flying with___	Q7.13 I would recommend flying with___	Q7.14 ___ consistently satisfies me:	Q7.15 If a problem with___'s service arose,	Q7.17 I plan to fly ___ in the	Q7.18 Flying with ___ represents excellent value for money:	Q7.19 When I think of flying with ___ I have positive thoughts:	Q7.21 I talk about___ with my friends:
Reproduced Correlation	Q7.1 I see a lot of advertisements about	.623[a]	.232	.101	.117	.310	.263	.043	.378	.092	-.192	-.030	-.032	.189	.122	.159	.073	.299
	Q7.3 ___ stands out from its competitors:	.232	.504[a]	.558	.530	.487	.350	.500	.478	.539	.289	.474	.388	.511	.328	.345	.510	.315
	Q7.4 I hold ___ in high regard:	.101	.558	.667[a]	.619	.506	.338	.603	.482	.643	.401	.591	.477	.581	.355	.365	.614	.284
	Q7.5___lives up to its promises:	.117	.530	.619	.628[a]	.536	.461	.616	.467	.607	.484	.613	.563	.540	.459	.466	.570	.405
	Q7.6 ___ offers clear advantage vs the competition:	.310	.487	.506	.536	.536[a]	.490	.503	.492	.497	.340	.478	.457	.475	.434	.451	.459	.458
	Q7.7 I am strongly committed to fly with___	.263	.350	.338	.461	.490	.615[a]	.443	.374	.351	.437	.442	.536	.319	.540	.547	.306	.584
	Q7.8 I can count on ___	.043	.500	.603	.616	.503	.443	.614[a]	.421	.594	.517	.621	.577	.514	.456	.458	.558	.383
	Q7.9 ___ is innovative:	.378	.478	.482	.467	.492	.374	.421	.502[a]	.464	.183	.379	.313	.470	.312	.336	.434	.355
	Q7.10___ cares about its customers:	.092	.539	.643	.607	.497	.351	.594	.464	.623[a]	.413	.585	.485	.559	.366	.375	.593	.297
	Q7.11 I have happy memories of flying with ___	-.192	.289	.401	.484	.340	.437	.517	.183	.413	.628[a]	.565	.618	.298	.478	.461	.379	.370
	Q7.13 I would recommend flying with ___	-.030	.474	.591	.613	.478	.442	.621	.379	.585	.565	.639[a]	.607	.490	.468	.465	.549	.376
	Q7.14 ___ consistently satisfies me:	-.032	.388	.477	.563	.457	.536	.577	.313	.485	.618	.607	.654[a]	.388	.543	.535	.443	.473
	Q7.15 If a problem with___'s service arose,	.189	.511	.581	.540	.475	.319	.514	.470	.559	.298	.490	.388	.524[a]	.311	.326	.532	.279
	Q7.17 I plan to fly ___ in the	.122	.328	.355	.459	.434	.540	.456	.312	.366	.478	.468	.543	.311	.503[a]	.503	.326	.500
	Q7.18 Flying with ___ represents excellent value for money:	.159	.345	.365	.466	.451	.547	.458	.336	.375	.461	.465	.535	.326	.503	.505[a]	.334	.509
	Q7.19 When I think of flying with ___ I have positive thoughts:	.073	.510	.614	.570	.459	.306	.558	.434	.593	.379	.549	.443	.532	.326	.334	.567[a]	.254
	Q7.21 I talk about___ with my friends:	.299	.315	.284	.405	.458	.584	.383	.355	.297	.370	.376	.473	.279	.500	.509	.254	.562[a]
Residual[b]	Q7.1 I see a lot of advertisements about		-.095	.050	-.012	-.136	-.111	.039	-.171	.006	.196	.081	.107	-.028	.023	-.077	.060	-.096
	Q7.3 ___ stands out from its competitors:	-.095		-.046	-.066	.003	.014	-.034	-.039	-.067	.023	-.023	-.023	-.087	.042	-.019	-.099	-.002
	Q7.4 I hold ___ in high regard:	.050	-.046		-.079	-.063	.028	-.057	-.075	-.055	.000	-.007	-.024	-.092	.052	.002	.024	.037
	Q7.5___lives up to its promises:	-.012	-.066	-.079		-.034	.007	-.031	.021	-.018	-.014	-.045	-.032	-.001	-.049	.001	-.058	-.011
	Q7.6 ___ offers clear advantage vs the competition:	-.136	.003	-.063	-.034		-.028	-.048	-.042	.035	-.037	.007	-.026	-.074	-.075	.042	-.049	-.050
	Q7.7 I am strongly committed to fly with___	-.111	.014	.028	.007	-.028		.023	-.028	.002	-.101	-.024	-.065	.032	-.080	-.063	.017	-.102
	Q7.8 I can count on ___	.039	-.034	-.057	-.031	-.048	.023		-.028	-.064	-.062	-.044	.007	.019	-.051	-.024	-.039	-.007
	Q7.9 ___ is innovative:	-.171	-.039	-.075	.021	-.042	-.028	-.028		-.041	.056	-.034	.026	-.063	.008	.002	-.096	-.046
	Q7.10___ cares about its customers:	.006	-.067	-.055	-.018	.035	.002	-.064	-.041		-.014	-.049	-.005	-.073	-.018	.051	-.086	.005
	Q7.11 I have happy memories of flying with ___	.196	.023	.000	-.014	-.037	-.101	-.062	.056	-.014		-.018	-.014	-.006	-.043	-.101	-.031	-.033
	Q7.13 I would recommend flying with ___	.081	-.023	-.007	-.045	.007	-.024	-.044	-.034	-.049	-.018		-.073	-.046	-.049	-.023	-.018	.029
	Q7.14 ___ consistently satisfies me:	.107	-.023	-.024	-.032	-.026	-.065	.007	.026	-.005	-.014	-.073		.035	-.031	-.097	-.020	-.064
	Q7.15 If a problem with___'s service arose,	-.028	-.087	-.092	-.001	-.074	.032	.019	-.063	-.073	-.006	-.046	.035		.007	-.032	-.097	.039
	Q7.17 I plan to fly ___ in the	.023	.042	.052	-.049	-.075	-.080	-.051	.008	-.018	-.043	-.049	-.031	.007		-.105	.046	-.127
	Q7.18 Flying with ___ represents excellent value for money:	-.077	-.019	.002	.001	.042	-.063	-.024	.002	.051	-.101	-.023	-.097	-.032	-.105		.005	-.109
	Q7.19 When I think of flying with ___ I have positive thoughts:	.060	-.099	.024	-.058	-.049	.017	-.039	-.096	-.086	-.031	-.018	-.020	-.097	.046	.005		.065
	Q7.21 I talk about___ with my friends:	-.096	-.002	.037	-.011	-.050	-.102	-.007	-.046	.005	-.033	.029	-.064	.039	-.127	-.109	.065	

Extraction Method: Principal Component Analysis.

a. Reproduced communalities

b. Residuals are computed between observed and reproduced correlations. There are 48 (35.0%) nonredundant residuals with absolute values greater than 0.05.

Rotated Component Matrix[a]

	Component		
	1	2	3
Q7.4 I hold ___ in high regard:	.784	.226	.037
Q7.10___ cares about its customers:	.745	.260	.026
Q7.19 When I think of flying with ___ I have positive thoughts:	.723	.208	.009
Q7.15 If a problem with___'s service arose,	.680	.186	.162
Q7.5___lives up to its promises:	.663	.431	.048
Q7.8 I can count on ___	.644	.444	-.045
Q7.3 ___ stands out from its competitors:	.638	.224	.217
Q7.13 I would recommend flying with ___	.622	.482	-.140
Q7.9 ___ is innovative:	.531	.221	.414
Q7.6 ___ offers clear advantage vs the competition:	.508	.427	.310
Q7.7 I am strongly committed to fly with___	.215	.712	.249
Q7.14 ___ consistently satisfies me:	.420	.676	-.144
Q7.21 I talk about___ with my friends:	.155	.668	.303
Q7.17 I plan to fly ___ in the	.261	.656	.069
Q7.18 Flying with ___ represents excellent value for money:	.275	.645	.116
Q7.11 I have happy memories of flying with ___	.347	.627	-.337
Q7.1 I see a lot of advertisements about	.070	.076	.782

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

Component Transformation Matrix

Component	1	2	3
1	.761	.637	.127
2	.119	-.329	.937
3	-.638	.698	.326

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Component Score Coefficient Matrix

	Component		
	1	2	3
Q7.1 I see a lot of advertisements about	-.055	-.021	.643
Q7.3 ___ stands out from its competitors:	.187	-.112	.122
Q7.4 I hold ___ in high regard:	.265	-.154	-.040
Q7.5___lives up to its promises:	.137	.005	-.031
Q7.6 ___ offers clear advantage vs the competition:	.049	.047	.199
Q7.7 I am strongly committed to fly with___	-.179	.317	.156
Q7.8 I can count on ___	.131	.024	-.108
Q7.9 ___ is innovative:	.126	-.085	.294
Q7.10___ cares about its customers:	.236	-.120	-.048
Q7.11 I have happy memories of flying with ___	-.045	.250	-.338
Q7.13 I would recommend flying with ___	.115	.059	-.188
Q7.14 ___ consistently satisfies me:	-.045	.242	-.185
Q7.15 If a problem with___'s service arose,	.224	-.146	.075
Q7.17 I plan to fly ___ in the	-.125	.278	.006
Q7.18 Flying with ___ represents excellent value for money:	-.118	.264	.044
Q7.19 When I think of flying with ___ I have positive thoughts:	.247	-.141	-.058
Q7.21 I talk about___ with my friends:	-.194	.311	.208

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Component Scores.

Appendix O **Cluster analysis**

Case Processing Summary[a,b]

Cases					
Valid		Missing		Total	
N	Percent	N	Percent	N	Percent
550	100.0	0	.0	550	100.0

a. Squared Euclidean Distance used

b. Ward Linkage

O.1 Hierarchical clustering – agglomeration schedule

Stage	Cluster Combined		Coefficients	Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	276	542	.000	0	0	263
2	502	504	.000	0	0	174
3	241	500	.000	0	0	210
4	497	498	.000	0	0	5
5	238	497	.000	0	4	6
6	238	492	.000	5	0	28
7	232	487	.000	0	0	61
8	217	480	.000	0	0	142
9	433	435	.000	0	0	10
10	169	433	.000	0	9	16
11	31	300	.000	0	0	267
12	17	294	.000	0	0	17
13	210	213	.000	0	0	21
14	194	195	.000	0	0	310
15	170	173	.000	0	0	16
16	169	170	.000	10	15	23
17	15	17	.000	0	12	154
18	209	221	.001	0	0	85
19	186	440	.002	0	0	193
20	205	478	.004	0	0	255
21	210	219	.006	13	0	148
22	181	453	.007	0	0	240
23	169	437	.009	16	0	251
24	529	530	.012	0	0	81
25	271	539	.014	0	0	87
26	117	119	.017	0	0	45
27	253	257	.020	0	0	89
28	238	488	.023	6	0	148
29	410	416	.027	0	0	73
30	399	408	.031	0	0	147
31	260	264	.035	0	0	171
32	162	165	.039	0	0	165
33	449	462	.043	0	0	281
34	246	255	.048	0	0	224
35	237	493	.053	0	0	141
36	421	422	.058	0	0	77
37	178	454	.063	0	0	312
38	182	188	.069	0	0	116
39	483	495	.075	0	0	219
40	190	206	.082	0	0	82
41	270	275	.088	0	0	208
42	537	541	.095	0	0	75
43	65	328	.102	0	0	217
44	251	499	.109	0	0	182
45	117	118	.116	26	0	333

Stage	Cluster Combined		Coefficients	Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
46	154	171	.123	0	0	149
47	496	508	.130	0	0	107
48	211	490	.138	0	0	237
49	494	515	.145	0	0	364
50	148	430	.153	0	0	287
51	507	519	.162	0	0	274
52	486	510	.170	0	0	83
53	249	250	.178	0	0	166
54	127	380	.187	0	0	176
55	518	526	.195	0	0	115
56	175	417	.204	0	0	185
57	450	471	.213	0	0	116
58	203	482	.223	0	0	226
59	348	359	.233	0	0	252
60	83	355	.243	0	0	259
61	216	232	.253	0	7	250
62	252	514	.263	0	0	171
63	150	393	.274	0	0	196
64	370	372	.284	0	0	319
65	259	267	.295	0	0	241
66	161	413	.306	0	0	185
67	277	547	.318	0	0	315
68	94	102	.329	0	0	331
69	196	208	.341	0	0	251
70	452	455	.353	0	0	155
71	358	367	.365	0	0	385
72	405	425	.377	0	0	172
73	410	432	.389	29	0	312
74	280	549	.402	0	0	145
75	537	545	.414	42	0	153
76	199	451	.427	0	0	261
77	404	421	.440	0	36	177
78	442	468	.453	0	0	164
79	109	396	.466	0	0	293
80	57	313	.479	0	0	344
81	258	529	.493	0	24	91
82	190	202	.507	40	0	261
83	226	486	.521	0	52	210
84	374	384	.535	0	0	136
85	209	479	.549	18	0	123
86	243	506	.563	0	0	273
87	266	271	.578	0	25	189
88	234	484	.592	0	0	166
89	253	520	.606	27	0	247
90	82	354	.621	0	0	378

Stage	Cluster Combined		Coefficients	Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
91	254	258	.636	0	81	156
92	212	224	.652	0	0	135
93	516	521	.668	0	0	219
94	279	548	.684	0	0	239
95	142	400	.701	0	0	242
96	244	503	.718	0	0	204
97	166	431	.734	0	0	269
98	193	458	.751	0	0	270
99	272	278	.769	0	0	350
100	274	534	.786	0	0	227
101	207	439	.803	0	0	124
102	146	411	.821	0	0	253
103	172	183	.840	0	0	306
104	377	381	.858	0	0	207
105	185	438	.877	0	0	369
106	120	391	.896	0	0	253
107	222	496	.915	0	47	390
108	68	317	.935	0	0	342
109	543	546	.954	0	0	227
110	240	248	.974	0	0	229
111	145	386	.994	0	0	309
112	98	365	1.014	0	0	346
113	446	473	1.034	0	0	200
114	329	333	1.054	0	0	296
115	518	527	1.074	55	0	247
116	182	450	1.094	38	57	231
117	245	263	1.114	0	0	241
118	461	475	1.135	0	0	359
119	269	536	1.156	0	0	258
120	457	465	1.177	0	0	281
121	233	472	1.199	0	0	144
122	231	236	1.220	0	0	260
123	209	456	1.242	85	0	214
124	207	459	1.264	101	0	310
125	176	184	1.287	0	0	232
126	39	303	1.310	0	0	170
127	273	531	1.333	0	0	315
128	77	330	1.356	0	0	291
129	414	448	1.379	0	0	272
130	160	192	1.402	0	0	322
131	532	540	1.425	0	0	345
132	256	505	1.449	0	0	297
133	133	394	1.473	0	0	257
134	375	385	1.497	0	0	334
135	198	212	1.521	0	92	365

Stage	Cluster Combined		Coefficients	Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
136	121	374	1.546	0	84	417
137	491	509	1.571	0	0	256
138	105	395	1.597	0	0	376
139	97	112	1.624	0	0	415
140	74	339	1.650	0	0	292
141	237	513	1.677	35	0	304
142	217	463	1.705	8	0	317
143	341	351	1.733	0	0	252
144	233	511	1.761	121	0	209
145	280	550	1.790	74	0	239
146	116	353	1.820	0	0	342
147	399	423	1.850	30	0	388
148	210	238	1.880	21	28	255
149	149	154	1.911	0	46	232
150	124	373	1.941	0	0	299
151	481	489	1.972	0	0	308
152	262	528	2.003	0	0	224
153	268	537	2.035	0	75	205
154	15	21	2.067	17	0	340
155	452	467	2.099	70	0	190
156	254	265	2.132	91	0	308
157	35	307	2.164	0	0	249
158	114	134	2.197	0	0	334
159	157	168	2.230	0	0	277
160	338	356	2.264	0	0	379
161	163	180	2.298	0	0	298
162	220	464	2.332	0	0	294
163	223	485	2.366	0	0	352
164	442	447	2.400	78	0	206
165	162	401	2.436	32	0	244
166	234	249	2.471	88	53	297
167	140	418	2.507	0	0	410
168	87	91	2.543	0	0	404
169	235	523	2.580	0	0	361
170	39	306	2.617	126	0	459
171	252	260	2.655	62	31	368
172	389	405	2.693	0	72	230
173	201	215	2.731	0	0	301
174	239	502	2.770	0	2	359
175	357	382	2.808	0	0	362
176	127	407	2.847	54	0	360
177	141	404	2.886	0	77	338
178	111	383	2.924	0	0	384
179	398	406	2.964	0	0	405
180	524	535	3.003	0	0	258

Stage	Cluster Combined		Coefficients	Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
181	93	371	3.043	0	0	330
182	218	251	3.083	0	44	335
183	189	426	3.124	0	0	222
184	151	390	3.165	0	0	356
185	161	175	3.206	66	56	372
186	130	368	3.247	0	0	362
187	387	402	3.290	0	0	271
188	108	132	3.333	0	0	375
189	261	266	3.376	0	87	263
190	158	452	3.420	0	155	372
191	42	315	3.463	0	0	336
192	156	443	3.508	0	0	235
193	186	409	3.552	19	0	288
194	60	316	3.597	0	0	292
195	138	361	3.642	0	0	383
196	150	152	3.689	63	0	387
197	143	144	3.736	0	0	282
198	444	469	3.784	0	0	348
199	58	310	3.832	0	0	321
200	441	446	3.880	0	113	392
201	63	79	3.929	0	0	329
202	95	135	3.978	0	0	280
203	139	403	4.027	0	0	313
204	244	476	4.076	96	0	382
205	268	538	4.127	153	0	446
206	420	442	4.178	0	164	322
207	106	377	4.230	0	104	295
208	270	533	4.282	41	0	350
209	200	233	4.335	0	144	274
210	226	241	4.389	83	3	409
211	392	427	4.442	0	0	346
212	179	419	4.497	0	0	356
213	343	344	4.551	0	0	400
214	209	466	4.607	123	0	354
215	167	436	4.662	0	0	348
216	197	204	4.718	0	0	316
217	65	86	4.775	43	0	450
218	90	128	4.832	0	0	320
219	483	516	4.889	39	93	304
220	129	155	4.948	0	0	309
221	81	113	5.008	0	0	290
222	189	429	5.068	183	0	358
223	103	122	5.129	0	0	377
224	246	262	5.191	34	152	332
225	126	147	5.253	0	0	363

Stage	Cluster Combined		Coefficients	Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
226	187	203	5.316	0	58	366
227	274	543	5.379	100	109	332
228	33	43	5.443	0	0	437
229	240	460	5.508	110	0	352
230	389	415	5.572	172	0	449
231	182	470	5.637	116	0	317
232	149	176	5.703	149	125	327
233	242	522	5.768	0	0	381
234	110	350	5.834	0	0	447
235	156	474	5.900	192	0	411
236	164	228	5.966	0	0	419
237	211	247	6.033	48	0	365
238	80	115	6.099	0	0	311
239	279	280	6.166	94	145	264
240	181	227	6.234	22	0	327
241	245	259	6.303	117	65	357
242	131	142	6.372	0	95	363
243	308	332	6.441	0	0	344
244	162	177	6.511	165	0	394
245	66	69	6.581	0	0	266
246	45	334	6.652	0	0	406
247	253	518	6.723	89	115	413
248	71	336	6.794	0	0	373
249	35	324	6.866	157	0	445
250	216	225	6.938	61	0	335
251	169	196	7.011	23	69	313
252	341	348	7.085	143	59	399
253	120	146	7.160	106	102	472
254	70	364	7.236	0	0	397
255	205	210	7.311	20	148	368
256	491	525	7.388	137	0	345
257	133	445	7.464	133	0	404
258	269	524	7.541	119	180	381
259	83	352	7.618	60	0	400
260	231	501	7.696	122	0	403
261	190	199	7.774	82	76	466
262	32	46	7.854	0	0	435
263	261	276	7.935	189	1	357
264	279	544	8.017	239	0	428
265	76	325	8.099	0	0	337
266	66	100	8.183	245	0	456
267	31	40	8.266	11	0	452
268	48	342	8.350	0	0	367
269	166	477	8.434	97	0	301
270	193	229	8.521	98	0	369

Stage	Cluster Combined		Coefficients	Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
271	379	387	8.608	0	187	338
272	414	434	8.696	129	0	401
273	230	243	8.785	0	86	358
274	200	507	8.873	209	51	448
275	214	517	8.964	0	0	366
276	331	366	9.054	0	0	328
277	123	157	9.145	0	159	430
278	30	301	9.236	0	0	439
279	345	369	9.328	0	0	378
280	95	107	9.420	202	0	355
281	449	457	9.513	33	120	382
282	143	360	9.606	197	0	394
283	327	340	9.699	0	0	399
284	191	397	9.793	0	0	462
285	56	326	9.889	0	0	370
286	285	287	9.986	0	0	438
287	137	148	10.085	0	50	408
288	186	428	10.187	193	0	316
289	92	125	10.289	0	0	397
290	81	85	10.392	221	0	407
291	62	77	10.495	0	128	426
292	60	74	10.599	194	140	393
293	88	109	10.705	0	79	307
294	159	220	10.812	0	162	427
295	106	349	10.920	207	0	424
296	318	329	11.028	0	114	469
297	234	256	11.137	166	132	467
298	136	163	11.248	0	161	376
299	124	376	11.362	150	0	401
300	10	12	11.476	0	0	353
301	166	201	11.591	269	173	436
302	296	302	11.707	0	0	414
303	34	312	11.828	0	0	329
304	237	483	11.950	141	219	364
305	101	363	12.072	0	0	443
306	172	378	12.197	103	0	422
307	88	412	12.322	293	0	374
308	254	481	12.448	156	151	390
309	129	145	12.574	220	111	377
310	194	207	12.701	14	124	429
311	80	362	12.829	238	0	383
312	178	410	12.958	37	73	471
313	139	169	13.089	203	251	468
314	29	49	13.222	0	0	418
315	273	277	13.355	127	67	428

Stage	Cluster Combined		Coefficients	Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
316	186	197	13.490	288	216	483
317	182	217	13.627	231	142	387
318	47	78	13.764	0	0	461
319	153	370	13.903	0	64	391
320	90	424	14.044	218	0	430
321	58	337	14.189	199	0	393
322	160	420	14.335	130	206	388
323	28	304	14.482	0	0	500
324	64	319	14.630	0	0	457
325	37	61	14.780	0	0	425
326	53	55	14.932	0	0	454
327	149	181	15.086	232	240	384
328	84	331	15.244	0	276	458
329	34	63	15.405	303	201	435
330	93	346	15.569	181	0	444
331	94	321	15.733	68	0	464
332	246	274	15.904	224	227	361
333	117	347	16.075	45	0	442
334	114	375	16.247	158	134	371
335	216	218	16.421	250	182	351
336	42	297	16.596	191	0	440
337	76	323	16.773	265	0	396
338	141	379	16.951	177	271	456
339	9	13	17.131	0	0	453
340	15	24	17.313	154	0	452
341	25	59	17.495	0	0	447
342	68	116	17.680	108	146	421
343	75	320	17.868	0	0	423
344	57	308	18.059	80	243	507
345	491	532	18.250	256	131	431
346	98	392	18.444	112	211	391
347	89	104	18.640	0	0	422
348	167	444	18.836	215	198	419
349	51	293	19.035	0	0	402
350	270	272	19.236	208	99	403
351	174	216	19.442	0	335	413
352	223	240	19.650	163	229	392
353	10	298	19.860	300	0	395
354	209	512	20.075	214	0	449
355	95	99	20.291	280	0	479
356	151	179	20.510	184	212	408
357	245	261	20.733	241	263	409
358	189	230	20.965	222	273	411
359	239	461	21.198	174	118	455
360	96	127	21.436	0	176	478

Stage	Cluster Combined		Coefficients	Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
361	235	246	21.677	169	332	431
362	130	357	21.918	186	175	417
363	126	131	22.164	225	242	410
364	237	494	22.411	304	49	446
365	198	211	22.661	135	237	463
366	187	214	22.913	226	275	405
367	27	48	23.168	0	268	379
368	205	252	23.424	255	171	427
369	185	193	23.683	105	270	474
370	56	335	23.948	285	0	476
371	67	114	24.213	0	334	434
372	158	161	24.484	190	185	465
373	71	73	24.761	248	0	421
374	72	88	25.039	0	307	458
375	108	388	25.322	188	0	436
376	105	136	25.606	138	298	442
377	103	129	25.893	223	309	429
378	82	345	26.180	90	279	420
379	27	338	26.474	367	160	412
380	19	36	26.770	0	0	450
381	242	269	27.069	233	258	462
382	244	449	27.367	204	281	448
383	80	138	27.667	311	195	466
384	111	149	27.968	178	327	494
385	314	358	28.279	0	71	490
386	7	290	28.592	0	0	454
387	150	182	28.908	196	317	489
388	160	399	29.228	322	147	498
389	14	18	29.549	0	0	481
390	222	254	29.871	107	308	473
391	98	153	30.194	346	319	471
392	223	441	30.519	352	200	475
393	58	60	30.845	321	292	437
394	143	162	31.176	282	244	468
395	10	292	31.526	353	0	509
396	22	76	31.879	0	337	432
397	70	92	32.235	254	289	433
398	5	286	32.592	0	0	477
399	327	341	32.948	283	252	415
400	83	343	33.312	259	213	445
401	124	414	33.689	299	272	434
402	51	289	34.080	349	0	488
403	231	270	34.472	260	350	455
404	87	133	34.869	168	257	479
405	187	398	35.272	366	179	490

Stage	Cluster Combined		Coefficients	Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
406	45	281	35.676	246	0	478
407	41	81	36.081	0	290	486
408	137	151	36.486	287	356	484
409	226	245	36.894	210	357	474
410	126	140	37.306	363	167	499
411	156	189	37.730	235	358	502
412	27	50	38.162	379	0	510
413	174	253	38.601	351	247	504
414	296	311	39.044	302	0	476
415	97	327	39.488	139	399	485
416	11	309	39.932	0	0	477
417	121	130	40.383	136	362	493
418	29	44	40.834	314	0	444
419	164	167	41.287	236	348	480
420	82	299	41.744	378	0	469
421	68	71	42.203	342	373	522
422	89	172	42.694	347	306	465
423	54	75	43.187	0	343	441
424	38	106	43.682	0	295	464
425	37	305	44.178	325	0	487
426	52	62	44.685	0	291	482
427	159	205	45.218	294	368	473
428	273	279	45.767	315	264	491
429	103	194	46.317	377	310	489
430	90	123	46.869	320	277	463
431	235	491	47.433	361	345	491
432	22	322	48.011	396	0	481
433	26	70	48.595	0	397	511
434	67	124	49.182	371	401	531
435	32	34	49.780	262	329	493
436	108	166	50.389	375	301	443
437	33	58	50.999	228	393	482
438	285	288	51.631	286	0	501
439	20	30	52.274	0	278	492
440	16	42	52.919	0	336	495
441	23	54	53.565	0	423	486
442	105	117	54.247	376	333	480
443	101	108	54.930	305	436	497
444	29	93	55.617	418	330	517
445	35	83	56.308	249	400	472
446	237	268	57.000	364	205	467
447	25	110	57.765	341	234	495
448	200	244	58.563	274	382	475
449	209	389	59.367	354	230	494
450	19	65	60.172	380	217	505

Stage	Cluster Combined		Coefficients	Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
451	4	283	60.977	0	0	460
452	15	31	61.806	340	267	461
453	9	291	62.676	339	0	519
454	7	53	63.547	386	326	488
455	231	239	64.425	403	359	499
456	66	141	65.309	266	338	485
457	64	295	66.210	324	0	501
458	72	84	67.116	374	328	492
459	6	39	68.037	0	170	503
460	4	8	68.995	451	0	512
461	15	47	69.958	452	318	517
462	191	242	70.929	284	381	483
463	90	198	71.911	430	365	508
464	38	94	72.895	424	331	526
465	89	158	73.918	422	372	497
466	80	190	74.948	383	261	484
467	234	237	75.978	297	446	498
468	139	143	77.048	313	394	508
469	82	318	78.255	420	296	518
470	3	284	79.473	0	0	506
471	98	178	80.720	391	312	502
472	35	120	81.996	445	253	500
473	159	222	83.277	427	390	523
474	185	226	84.562	369	409	504
475	200	223	85.888	448	392	513
476	56	296	87.215	370	414	514
477	5	11	88.559	398	416	512
478	45	96	89.905	406	360	515
479	87	95	91.269	404	355	487
480	105	164	92.790	442	419	505
481	14	22	94.368	389	432	519
482	33	52	95.952	437	426	533
483	186	191	97.614	316	462	513
484	80	137	99.296	466	408	515
485	66	97	101.099	456	415	503
486	23	41	102.999	441	407	521
487	37	87	104.902	425	479	511
488	7	51	106.808	454	402	520
489	103	150	108.732	429	387	507
490	187	314	110.726	405	385	516
491	235	273	112.804	431	428	528
492	20	72	114.896	439	458	530
493	32	121	117.089	435	417	532
494	111	209	119.302	384	449	510
495	16	25	121.666	440	447	522

Stage	Cluster Combined		Coefficients	Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
496	1	2	124.060	0	0	529
497	89	101	126.554	465	443	535
498	160	234	129.070	388	467	528
499	126	231	131.771	410	455	523
500	28	35	134.617	323	472	509
501	64	285	137.872	457	438	518
502	98	156	141.217	471	411	524
503	6	66	144.695	459	485	514
504	174	185	148.210	413	474	527
505	19	105	151.872	450	480	526
506	3	282	155.832	470	0	525
507	57	103	159.834	344	489	527
508	90	139	163.855	463	468	521
509	10	28	168.219	395	500	520
510	27	111	172.744	412	494	524
511	26	37	177.401	433	487	516
512	4	5	182.116	460	477	529
513	186	200	186.959	483	475	531
514	6	56	191.875	503	476	532
515	45	80	196.897	478	484	534
516	26	187	202.340	511	490	537
517	15	29	207.798	461	444	530
518	64	82	213.415	501	469	539
519	9	14	219.298	453	481	525
520	7	10	225.222	488	509	543
521	23	90	231.329	486	508	536
522	16	68	237.745	495	421	535
523	126	159	244.320	499	473	538
524	27	98	251.651	510	502	542
525	3	9	259.994	506	519	545
526	19	38	268.504	505	464	537
527	57	174	277.073	507	504	536
528	160	235	285.677	498	491	534
529	1	4	295.332	496	512	541
530	15	20	305.288	517	492	533
531	67	186	315.841	434	513	540
532	6	32	328.505	514	493	539
533	15	33	341.730	530	482	546
534	45	160	357.013	515	528	540
535	16	89	373.876	522	497	543
536	23	57	398.159	521	527	538
537	19	26	425.697	526	516	541
538	23	126	453.905	536	523	546
539	6	64	482.516	532	518	542
540	45	67	518.558	534	531	544

Stage	Cluster Combined		Coefficients	Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
541	1	19	560.919	529	537	547
542	6	27	603.282	539	524	547
543	7	16	652.225	520	535	544
544	7	45	711.336	543	540	545
545	3	7	788.799	525	544	549
546	15	23	870.966	533	538	548
547	1	6	1073.534	541	542	548
548	1	15	1359.126	547	546	549
549	1	3	1647.000	548	545	0

Quick Cluster

Initial Cluster Centers

	Cluster			
	1	2	3	4
A-R factor score 1 for analysis 2	-5.77213	1.29893	3.29736	-.48762
A-R factor score 2 for analysis 2	-.75445	1.72823	-3.09637	.24162
A-R factor score 3 for analysis 2	-.53206	1.76859	-.42673	-3.41994

Iteration History[a]

	Change in Cluster Centers			
Iteration	1	2	3	4
1	2.486	2.242	2.642	2.380
2	.780	.177	.479	.171
3	.531	.126	.233	.151
4	.262	.124	.169	.077
5	.123	.042	.093	.073
6	.105	.032	.044	.044
7	.055	.023	.032	.024
8	.016	.007	.000	.000
9	.016	.000	.000	.008
10	.000	.000	.000	.000

a. Convergence achieved due to no or small change in cluster centers. The maximum absolute coordinate change for any center is .000. The current iteration is 10. The minimum distance between initial centers is 5.665.

O.2 Final cluster centres

Final Cluster Centers

	Cluster			
	1	2	3	4
A-R factor score 1 for analysis 4	-1.56194	.19328	.39037	.23303
A-R factor score 2 for analysis 4	-.18047	.77458	-1.23696	.12392
A-R factor score 3 for analysis 4	-.00435	.58683	.58268	-1.13900

ANOVA

	Cluster		Error			
	Mean Square	df	Mean Square	df	F	Sig.
A-R factor score 1 for analysis 4	74.929	3	.594	546	126.185	.000
A-R factor score 2 for analysis 4	102.198	3	.444	546	230.192	.000
A-R factor score 3 for analysis 4	104.806	3	.430	546	243.943	.000

The F tests should be used only for descriptive purposes because the clusters have been chosen to maximize the differences among cases in different clusters. The observed significance levels are not corrected for this and thus cannot be interpreted as tests of the hypothesis that the cluster means are equal.

Number of Cases in each Cluster

Cluster	1	78.000
	2	189.000
	3	123.000
	4	160.000
Valid		550.000
Missing		.000

Appendix P **Multivariate F results assessing cluster solution criterion validity**

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Q13A LeisureShort haul flights (less than 5 hours)	Between Groups	.880	3	.293	.146	.932
	Within Groups	1081.809	540	2.003		
	Total	1082.689	543			
Q13B LeisureLong haul flights (more than 5 hours)	Between Groups	23.779	3	7.926	2.187	.089
	Within Groups	1957.280	540	3.625		
	Total	1981.059	543			
Q13C BusinessShort haul flights (less than 5 hours)	Between Groups	14.825	3	4.942	1.715	.164
	Within Groups	806.622	280	2.881		
	Total	821.447	283			
Q13D BusinessLong haul flights (more than 5 hours)	Between Groups	47.743	3	15.914	6.232	.000
	Within Groups	714.972	280	2.553		
	Total	762.715	283			
Q6 For your next trip: how likely you are to fly with f("Q5") ?	Between Groups	159.965	3	53.322	46.572	.000
	Within Groups	625.126	546	1.145		
	Total	785.091	549			

Appendix Q **Multiple discriminant analysis – 1**

Analysis Case Processing Summary

Unweighted Cases		N	Percent
Valid		388	70.5
Excluded	Missing or out-of-range group codes	162	29.5
	At least one missing discriminating variable	0	.0
	Both missing or out-of-range group codes and at least one missing discriminating variable	0	.0
	Total	162	29.5
Total		550	100.0

Tests of Equality of Group Means

	Wilks' Lambda	F	df1	df2	Sig.
DET1 Frequent Flights to destinations:	.964	4.715	3	384	.003
DET2 Convenient flight schedule:	.949	6.859	3	384	.000
DET3 Availability of non-stop flights:	.983	2.243	3	384	.083
DET4 On-time baggage delivery upon arrival:	.998	.228	3	384	.877
DET5 Advance seat selection:	.984	2.126	3	384	.096
DET6 Free tickets from Frequent Flyer programme:	.995	.660	3	384	.577
DET7 Internet check in:	.943	7.705	3	384	.000
DET8 Up to date aircraft:	.871	18.957	3	384	.000
DET9 Personal onboard	.906	13.341	3	384	.000
DET10 Seat space:	.866	19.802	3	384	.000
DET11 Meal service:	.975	3.307	3	384	.020
DET12 Complimentary newspapers:	.917	11.611	3	384	.000
DET13 Physical appearance of employees:	.899	14.414	3	384	.000
DET14 Close attention by cabin crew:	.988	1.509	3	384	.212
DET15 Cabin crew's ability to answer questions:	.946	7.275	3	384	.000
DET16 Employees who are willing to help passengers:	.935	8.848	3	384	.000
DET17 Courtesy of employees:	.995	.693	3	384	.557
DET18 Employees who have the knowledge to answer questions when things goes wrong:	.978	2.873	3	384	.036
DET19 Sincere interest in solving problems:	.983	2.247	3	384	.082
DET20 Adequacy of information on airlines' websites:	.990	1.284	3	384	.280
DET21 Ticket purchase opportunity via Internet:	.989	1.428	3	384	.234
DET22 Availability of airline website on the internet:	.976	3.212	3	384	.023
DET.23 Price:	.968	4.279	3	384	.005
DET24 Value for money:	.981	2.506	3	384	.059

Variables Not in the Analysis

Step		Tolerance	Min. Tolerance	F to Enter	Min. D Squared	Between Groups
0	DET1 Frequent Flights to destinations:	1.000	1.000	4.715	.000	VS and EK
	DET2 Convenient flight schedule:	1.000	1.000	6.859	.008	VS and EK
	DET3 Availability of non-stop flights:	1.000	1.000	2.243	.011	BA and VS
	DET4 On-time baggage delivery upon arrival:	1.000	1.000	.228	.000	VS and EK
	DET5 Advance seat selection:	1.000	1.000	2.126	.003	VS and EK
	DET6 Free tickets from Frequent Flyer programme:	1.000	1.000	.660	.001	VS and EK
	DET7 Internet check in:	1.000	1.000	7.705	.002	EK and SQ
	DET8 Up to date aircraft:	1.000	1.000	18.957	.005	VS and EK
	DET9 Personal onboard	1.000	1.000	13.341	.002	VS and SQ
	DET10 Seat space:	1.000	1.000	19.802	.001	EK and SQ
	DET11 Meal service:	1.000	1.000	3.307	.008	BA and VS
	DET12 Complimentary newspapers:	1.000	1.000	11.611	.038	BA and VS
	DET13 Physical appearance of employees:	1.000	1.000	14.414	.050	BA and VS
	DET14 Close attention by cabin crew:	1.000	1.000	1.509	.000	BA and VS
	DET15 Cabin crew's ability to answer questions:	1.000	1.000	7.275	.006	BA and VS
	DET16 Employees who are willing to help passengers:	1.000	1.000	8.848	.009	BA and VS
	DET17 Courtesy of employees:	1.000	1.000	.693	.001	BA and SQ
	DET18 Employees who have the knowledge to answer questions when things goes wrong:	1.000	1.000	2.873	.011	BA and VS
	DET19 Sincere interest in solving problems:	1.000	1.000	2.247	.011	BA and EK
	DET20 Adequacy of information on airlines' websites:	1.000	1.000	1.284	.000	VS and EK
	DET21 Ticket purchase opportunity via Internet:	1.000	1.000	1.428	.002	BA and VS
	DET22 Availability of airline website on the internet:	1.000	1.000	3.212	.002	BA and EK
	DET.23 Price:	1.000	1.000	4.279	.000	VS and SQ
	DET24 Value for money:	1.000	1.000	2.506	.004	EK and SQ

Stepwise Statistics

Variables Entered/Removed[a],b,c,d

Step	Entered	Removed	Min. D Squared					
					Exact F			
			Statistic	Between Groups	Statistic	df1	df2	Sig.
1	DET13 Physical appearance of employees:		.050	BA and VS	2.851	1	384.000	.092
2	DET9 Personal onboard		.172	VS and EK	3.566	2	383.000	.029
3	DET22 Availability of airline website on the internet:		.250	VS and EK	3.438	3	382.000	.017
4	DET3 Availability of non-stop flights:		.299	VS and EK	3.076	4	381.000	.016
5	DET10 Seat space:		.351	BA and VS	3.957	5	380.000	.002
6	DET8 Up to date aircraft:		.483	VS and EK	3.300	6	379.000	.004
7		DET9 Personal onboard	.476	VS and EK	3.913	5	380.000	.002
8		DET22 Availability of airline website on the internet:	.394	EK and SQ	2.680	4	381.000	.031
9	DET21 Ticket purchase opportunity via Internet:		.499	VS and EK	4.102	5	380.000	.001
10	DET5 Advance seat selection:		.505	EK and SQ	2.278	6	379.000	.036

At each step, the variable that maximizes the Mahalanobis distance between the two closest groups is entered.

a. Maximum number of steps is 48.

b. Minimum partial F to enter is 3.84.

c. Maximum partial F to remove is 2.71.

d. F level, tolerance, or VIN insufficient for further computation.

Wilks' Lambda

Step	Number of Variables	Lambda	df1	df2	df3	Exact F				Approximate F			
						Statistic	df1	df2	Sig.	Statistic	df1	df2	Sig.
1	1	.899	1	3	384	14.414	3	384.000	.000				
2	2	.846	2	3	384	11.102	6	766.000	.000				
3	3	.820	3	3	384					8.753	9	929.838	.000
4	4	.783	4	3	384					8.124	12	1008.323	.000
5	5	.755	5	3	384					7.500	15	1049.414	.000
6	6	.711	6	3	384					7.638	18	1072.459	.000
7	5	.716	5	3	384					8.988	15	1049.414	.000
8	4	.731	4	3	384					10.578	12	1008.323	.000
9	5	.707	5	3	384					9.346	15	1049.414	.000
10	6	.680	6	3	384					8.715	18	1072.459	.000

Summary of Canonical Discriminant Functions

Eigenvalues

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.346[a]	79.0	79.0	.507
2	.083[a]	19.0	98.0	.277
3	.009[a]	2.0	100.0	.093

a. First 3 canonical discriminant functions were used in the analysis.

Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 3	.680	147.490	18	.000
2 through 3	.915	33.849	10	.000
3	.991	3.331	4	.504

Structure Matrix

	Function		
	1	2	3
DET10 Seat space:	.661*	-.025	.595
DET13 Physical appearance of employees:	.543*	-.343	-.258
DET9 Personal onboard[a]	.418*	.150	.277
DET16 Employees who are willing to help passengers:[a]	.411*	-.153	-.032
DET15 Cabin crew's ability to answer questions:[a]	.407*	-.158	-.054
DET12 Complimentary newspapers:[a]	.379*	-.059	-.103
DET14 Close attention by cabin crew:[a]	.335*	-.103	-.085
DET7 Internet check in:[a]	.296*	.228	.109
DET3 Availability of non-stop flights:	-.218*	.105	.092
DET18 Employees who have the knowledge to answer questions when things goes wrong:[a]	.212*	-.097	.021
DET11 Meal service:[a]	.206*	.107	.181
DET17 Courtesy of employees:[a]	.206*	-.082	-.013
DET8 Up to date aircraft:	.574	.638*	-.030
DET21 Ticket purchase opportunity via Internet:	-.108	.280*	.264
DET20 Adequacy of information on airlines' websites:[a]	-.077	.241*	.172
DET6 Free tickets from Frequent Flyer programme:[a]	-.057	.213*	.141
DET22 Availability of airline website on the internet:[a]	-.131	.171*	.082
DET5 Advance seat selection:	-.214	.010	.279*
DET4 On-time baggage delivery upon arrival:[a]	-.047	.141	.210*
DET2 Convenient flight schedule:[a]	-.141	.056	.192*
DET19 Sincere interest in solving problems:[a]	.002	.142	.173*
DET1 Frequent Flights to destinations:[a]	-.092	.014	.144*
DET.23 Price:[a]	-.001	.074	.140*
DET24 Value for money:[a]	.049	.130	.137*

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions
Variables ordered by absolute size of correlation within function.

*. Largest absolute correlation between each variable and any dis

a. This variable not used in the analysis.

Standardized Canonical Discriminant Function Coefficients

	Function		
	1	2	3
DET3 Availability of non-stop flights:	-.354	-.056	-.035
DET5 Advance seat selection:	-.429	-.121	.221
DET8 Up to date aircraft:	.401	1.032	-.458
DET10 Seat space:	.551	-.350	1.135
DET13 Physical appearance of employees:	.386	-.652	-.787
DET21 Ticket purchase opportunity via Internet:	-.242	.415	.187

Rotation Statistics

Varimax Transformation Matrix

Function	1	2	3
1	.660	.540	-.522
2	-.184	.790	.585
3	.728	-.290	.621

Rotated Standardized Canonical Discriminant Function Coefficients[a]

	Function		
	1	2	3
DET10 Seat space:	1.255*	-.308	.213
DET3 Availability of non-stop flights:	-.248*	-.225	.131
DET8 Up to date aircraft:	-.259	1.165*	.109
DET5 Advance seat selection:	-.100	-.392*	.290
DET13 Physical appearance of employees:	-.198	-.079	-1.072*
DET21 Ticket purchase opportunity via Internet:	-.100	.143	.485*

Variables ordered by absolute size of correlation within function.

*. Largest absolute coefficient of the variable among the discrimin

a. % of variance by function 1 = 36.1, function 2 = 35.1, function 3 =

Correlations Between Variables and Rotated Functions

	Function		
	1	2	3
DET3 Availability of non-stop flights:	-.097	-.061	.232
DET5 Advance seat selection:	.059	-.188	.291
DET8 Up to date aircraft:	.240	.823	.055
DET10 Seat space:	.874	.165	.010
DET13 Physical appearance of employees:	.234	.097	-.645
DET21 Ticket purchase opportunity via Internet:	.069	.086	.384
DET1 Frequent Flights to destinations:[a]	.041	-.081	.146
DET2 Convenient flight schedule:[a]	.036	-.088	.225
DET4 On-time baggage delivery upon arrival:[a]	.096	.025	.237
DET6 Free tickets from Frequent Flyer programme:[a]	.026	.097	.242
DET7 Internet check in:[a]	.233	.309	.046
DET9 Personal onboard[a]	.450	.265	.041
DET11 Meal service:[a]	.248	.143	.068
DET12 Complimentary newspapers:[a]	.186	.188	-.296
DET14 Close attention by cabin crew:[a]	.179	.124	-.288
DET15 Cabin crew's ability to answer questions:[a]	.258	.111	-.338
DET16 Employees who are willing to help passengers:[a]	.277	.111	-.324
DET17 Courtesy of employees:[a]	.141	.050	-.164
DET18 Employees who have the knowledge to answer questions when things goes wrong:[a]	.173	.032	-.155
DET19 Sincere interest in solving problems:[a]	.101	.063	.189
DET20 Adequacy of information on airlines' websites:[a]	.030	.099	.288
DET22 Availability of airline website on the internet:[a]	-.058	.041	.219
DET.23 Price:[a]	.088	.017	.131
DET24 Value for money:[a]	.108	.090	.136

Pooled within-groups correlations between discriminating variables and rotated standardized canonical discriminant functions

a. This variable not used in the analysis.

Canonical Discriminant Function Coefficients

	Function		
	1	2	3
DET3 Availability of non-stop flights:	-.034	-.031	.018
DET5 Advance seat selection:	-.017	-.068	.050
DET8 Up to date aircraft:	-.041	.184	.017
DET10 Seat space:	.188	-.046	.032
DET13 Physical appearance of employees:	-.030	-.012	-.163
DET21 Ticket purchase opportunity via Internet:	-.014	.021	.070
(Constant)	-.762	-.508	.174

Unstandardized coefficients

Functions at Group Centroids

recodeq5		Function		
		1	2	3
	BA	-.349	-.403	.247
	VS	-.069	.455	.130
	EK	.545	.384	-.235
	SQ	.579	.078	-.876

Unstandardized canonical discriminant functions evaluated at group means

Classification Statistics

Classification Processing Summary

Processed		550
Excluded	Missing or out-of-range group codes	0
	At least one missing discriminating variable	0
Used in Output		550

Prior Probabilities for Groups

recodeq5	Prior	Cases Used in Analysis	
		Unweighted	Weighted
BA	.466	181	181.000
VS	.214	83	83.000
EK	.214	83	83.000
SQ	.106	41	41.000
Total	1.000	388	388.000

Classification Function Coefficients

	recodeq5			
	BA	VS	EK	SQ
DET3 Availability of non-stop flights:	.100	.062	.036	.033
DET5 Advance seat selection:	.045	-.024	-.048	-.060
DET8 Up to date aircraft:	.017	.161	.116	.048
DET10 Seat space:	.060	.070	.177	.177
DET13 Physical appearance of employees:	.054	.055	.097	.204
DET21 Ticket purchase opportunity via Internet:	.018	.024	-.012	-.063
(Constant)	-1.693	-3.085	-3.715	-4.707

Fisher's linear discriminant functions

Classification Results[b],c

		recodeq5	Predicted Group Membership				
			BA	VS	EK	SQ	Total
Original	Count	BA	159	5	16	1	181
		VS	50	17	14	2	83
		EK	37	4	34	8	83
		SQ	17	2	18	4	41
		Ungrouped cases	108	10	34	10	162
	%	BA	87.8	2.8	8.8	.6	100.0
		VS	60.2	20.5	16.9	2.4	100.0
		EK	44.6	4.8	41.0	9.6	100.0
		SQ	41.5	4.9	43.9	9.8	100.0
		Ungrouped cases	66.7	6.2	21.0	6.2	100.0
Cross-validated[a]	Count	BA	154	8	18	1	181
		VS	50	15	16	2	83
		EK	38	5	32	8	83
		SQ	17	2	18	4	41
	%	BA	85.1	4.4	9.9	.6	100.0
		VS	60.2	18.1	19.3	2.4	100.0
		EK	45.8	6.0	38.6	9.6	100.0
		SQ	41.5	4.9	43.9	9.8	100.0

a. Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the

b. 55.2% of original grouped cases correctly classified.

c. 52.8% of cross-validated grouped cases correctly classified.

Appendix R **Multiple discriminant analysis – 2**

Analysis Case Processing Summary

Unweighted Cases		N	Percent
Valid		550	100.0
Excluded	Missing or out-of-range group codes	0	.0
	At least one missing discriminating variable	0	.0
	Both missing or out-of-range group codes and at least one missing discriminating variable	0	.0
	Total	0	.0
Total		550	100.0

Tests of Equality of Group Means					
	Wilks' Lambda	F	df1	df2	Sig.
DET1 Frequent Flights to destinations:	.929	13.887	3	546	.000
DET2 Convenient flight schedule:	.936	12.525	3	546	.000
DET3 Availability of non-stop flights:	.970	5.608	3	546	.001
DET4 On-time baggage delivery upon arrival:	.973	5.099	3	546	.002
DET5 Advance seat selection:	.938	12.129	3	546	.000
DET6 Free tickets from Frequent Flyer programme:	.934	12.885	3	546	.000
DET7 Internet check in:	.961	7.453	3	546	.000
DET8 Up to date aircraft:	.928	14.079	3	546	.000
DET9 Personal onboard	.953	8.922	3	546	.000
DET10 Seat space:	.939	11.740	3	546	.000
DET11 Meal service:	.966	6.472	3	546	.000
DET12 Complimentary newspapers:	.975	4.649	3	546	.003
DET13 Physical appearance of employees:	.965	6.610	3	546	.000
DET14 Close attention by cabin crew:	.941	11.508	3	546	.000
DET15 Cabin crew's ability to answer questions:	.963	7.033	3	546	.000
DET16 Employees who are willing to help passengers:	.941	11.499	3	546	.000
DET17 Courtesy of employees:	.936	12.527	3	546	.000
DET18 Employees who have the knowledge to answer questions when things goes wrong:	.940	11.523	3	546	.000
DET19 Sincere interest in solving problems:	.926	14.646	3	546	.000
DET20 Adequacy of information on airlines' websites:	.945	10.642	3	546	.000
DET21 Ticket purchase opportunity via Internet:	.945	10.549	3	546	.000
DET22 Availability of airline website on the internet:	.924	15.062	3	546	.000
DET.23 Price:	.892	22.131	3	546	.000
DET24 Value for money:	.895	21.324	3	546	.000

Variables Not in the Analysis

Step		Tolerance	Min. Tolerance	F to Enter	Min. D Squared	Between Groups
0	DET1 Frequent Flights to destinations:	1.000	1.000	13.887	.001	3 and 4
	DET2 Convenient flight schedule:	1.000	1.000	12.525	.000	1 and 4
	DET3 Availability of non-stop flights:	1.000	1.000	5.608	.003	1 and 3
	DET4 On-time baggage delivery upon arrival:	1.000	1.000	5.099	.001	1 and 3
	DET5 Advance seat selection:	1.000	1.000	12.129	.001	3 and 4
	DET6 Free tickets from Frequent Flyer programme:	1.000	1.000	12.885	.003	3 and 4
	DET7 Internet check in:	1.000	1.000	7.453	.003	2 and 3
	DET8 Up to date aircraft:	1.000	1.000	14.079	.002	3 and 4
	DET9 Personal onboard	1.000	1.000	8.922	.017	2 and 3
	DET10 Seat space:	1.000	1.000	11.740	.000	2 and 4
	DET11 Meal service:	1.000	1.000	6.472	.009	2 and 3
	DET12 Complimentary newspapers:	1.000	1.000	4.649	.000	3 and 4
	DET13 Physical appearance of employees:	1.000	1.000	6.610	.005	3 and 4
	DET14 Close attention by cabin crew:	1.000	1.000	11.508	.008	3 and 4
	DET15 Cabin crew's ability to answer questions:	1.000	1.000	7.033	.000	3 and 4
	DET16 Employees who are willing to help passengers:	1.000	1.000	11.499	.005	3 and 4
	DET17 Courtesy of employees:	1.000	1.000	12.527	.023	2 and 3
	DET18 Employees who have the knowledge to answer questions when things goes wrong:	1.000	1.000	11.523	.026	3 and 4
	DET19 Sincere interest in solving problems:	1.000	1.000	14.646	.000	1 and 4
	DET20 Adequacy of information on airlines' websites:	1.000	1.000	10.642	.002	3 and 4
	DET21 Ticket purchase opportunity via Internet:	1.000	1.000	10.549	.000	3 and 4
	DET22 Availability of airline website on the internet:	1.000	1.000	15.062	.001	1 and 3
	DET.23 Price:	1.000	1.000	22.131	.030	1 and 3
	DET24 Value for money:	1.000	1.000	21.324	.004	3 and 4

Variables Entered/Removed[a],b,c,d

Step	Entered	Removed	Min. D Squared					
					Exact F			
			Statistic	Between Groups	Statistic	df1	df2	Sig.
1	DET.23 Price:		.030	1 and 3	1.432	1	546.000	.232
2	DET17 Courtesy of employees:		.197	2 and 4	8.510	2	545.000	.000
3	DET19 Sincere interest in solving problems:		.377	1 and 3	5.975	3	544.000	.001
4	DET2 Convenient flight schedule:		.476	1 and 3	5.648	4	543.000	.000
5	DET10 Seat space:		.550	3 and 4	7.588	5	542.000	.000
6	DET9 Personal onboard		.591	2 and 4	8.455	6	541.000	.000
7	DET24 Value for money:		.691	2 and 4	8.455	7	540.000	.000
8		DET17 Courtesy of employees:	.679	2 and 4	9.718	6	541.000	.000
9	DET8 Up to date aircraft:		.687	2 and 4	8.416	7	540.000	.000

At each step, the variable that maximizes the Mahalanobis distance between the two closest groups is entered.

a. Maximum number of steps is 48.

b. Minimum partial F to enter is 3.84.

Eigenvalues

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.214[a]	58.3	58.3	.420
2	.081[a]	22.1	80.4	.274
3	.072[a]	19.6	100.0	.259

a. First 3 canonical discriminant functions were used in the analysis.

Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 3	.711	185.435	21	.000
2 through 3	.863	80.094	12	.000
3	.933	37.673	5	.000

Standardized Canonical Discriminant Function Coefficients

	Function		
	1	2	3
DET2 Convenient flight schedule:	.386	-.311	-.240
DET8 Up to date aircraft:	.471	.365	.012
DET9 Personal onboard	-.386	-.277	.646
DET10 Seat space:	-.243	.844	.037
DET19 Sincere interest in solving problems:	.013	-.413	.584
DET.23 Price:	.586	.391	-.543
DET24 Value for money:	.353	-.254	.247

Rotated Standardized Canonical Discriminant Function Coefficients [a]

	Function		
	1	2	3
DET24 Value for money:	.391*	-.053	.308
DET.23 Price:	.013	.888*	.050
DET9 Personal onboard	.206	-.770*	-.089
DET19 Sincere interest in solving problems:	.406	-.548*	.214
DET8 Up to date aircraft:	.352	.466*	-.119
DET10 Seat space:	-.047	.236	-.845*
DET2 Convenient flight schedule:	.040	.236	.496*

Variables ordered by absolute size of correlation within function.

*. Largest absolute coefficient of the variable among the discriminant functions

a. % of variance by function 1 = 36.1, function 2 = 35.4, function 3 = 28.5

Correlations Between Variables and Rotated Functions

	Function		
	1	2	3
DET2 Convenient flight schedule:	.388	.129	.466
DET8 Up to date aircraft:	.706	.203	-.399
DET9 Personal onboard	.659	-.227	-.398
DET10 Seat space:	.569	.106	-.676
DET19 Sincere interest in solving problems:	.771	-.226	.229
DET.23 Price:	.469	.630	.074
DET24 Value for money:	.787	.150	.200
DET1 Frequent Flights to destinations:[a]	.367	.094	.323
DET3 Availability of non-stop flights:[a]	.403	.114	.225
DET4 On-time baggage delivery upon arrival:[a]	.506	.001	.026
DET5 Advance seat selection:[a]	.395	.056	.093
DET6 Free tickets from Frequent Flyer programme:[a]	.531	.049	.131
DET7 Internet check in:[a]	.608	.077	-.203
DET11 Meal service:[a]	.493	-.031	-.118
DET12 Complimentary newspapers:[a]	.401	.044	-.229
DET13 Physical appearance of employees:[a]	.471	.080	-.301
DET14 Close attention by cabin crew:[a]	.530	.023	-.090
DET15 Cabin crew's ability to answer questions:[a]	.495	.043	-.200
DET16 Employees who are willing to help passengers:[a]	.478	.058	-.228
DET17 Courtesy of employees:[a]	.514	-.011	-.033
DET18 Employees who have the knowledge to answer questions when things goes wrong:[a]	.515	.013	-.104
DET20 Adequacy of information on airlines' websites:[a]	.628	-.052	.210
DET21 Ticket purchase opportunity via Internet:[a]	.590	.003	.196
DET22 Availability of airline website on the internet:[a]	.367	.282	.273

Pooled within-groups correlations between discriminating variables and rotated standardized canonical discriminant functions

a. This variable not used in the analysis.

Canonical Discriminant Function Coefficients

	Function		
	1	2	3
DET2 Convenient flight schedule:	.006	.035	.073
DET8 Up to date aircraft:	.053	.070	-.018
DET9 Personal onboard	.029	-.107	-.012
DET10 Seat space:	-.007	.034	-.121
DET19 Sincere interest in solving problems:	.063	-.084	.033
DET.23 Price:	.002	.126	.007
DET24 Value for money:	.058	-.008	.046
(Constant)	-1.287	-.462	.370

Unstandardized coefficients

Functions at Group Centroids

Cluster Number of Case		Function		
		1	2	3
	1	-.588	-.451	.322
	2	.450	.219	.315
	3	-.057	-.481	-.450
	4	-.202	.331	-.184

Unstandardized canonical discriminant functions evaluated at group means

Classification Statistics

Classification Processing Summary

Processed		550
Excluded	Missing or out-of-range group codes	0
	At least one missing discriminating variable	0
Used in Output		550

Prior Probabilities for Groups

Cluster Number of Case			Cases Used in Analysis	
		Prior	Unweighted	Weighted
	1	.142	78	78.000
	2	.344	189	189.000
	3	.224	123	123.000
	4	.291	160	160.000
	Total	1.000	550	550.000

Classification Function Coefficients

	Cluster Number of Case			
	1	2	3	4
DET2 Convenient flight schedule:	.079	.108	.025	.072
DET8 Up to date aircraft:	-.005	.097	.035	.080
DET9 Personal onboard	.064	.023	.092	-.002
DET10 Seat space:	.031	.048	.120	.117
DET19 Sincere interest in solving problems:	.030	.038	.040	-.029
DET.23 Price:	.023	.109	.015	.118
DET24 Value for money:	-.026	.028	-.031	-.033
(Constant)	-2.443	-3.055	-2.835	-2.535

Fisher's linear discriminant functions

Classification Results[b],c

		Cluster Number of Case	Predicted Group Membership				
			1	2	3	4	Total
Original	Count	1	29	17	14	18	78
		2	25	118	14	32	189
		3	19	26	57	21	123
		4	24	50	27	59	160
	%	1	37.2	21.8	17.9	23.1	100.0
		2	13.2	62.4	7.4	16.9	100.0
		3	15.4	21.1	46.3	17.1	100.0
		4	15.0	31.3	16.9	36.9	100.0
Cross-validated[a]	Count	1	28	18	14	18	78
		2	25	114	14	36	189
		3	19	28	53	23	123
		4	25	51	28	56	160
	%	1	35.9	23.1	17.9	23.1	100.0
		2	13.2	60.3	7.4	19.0	100.0
		3	15.4	22.8	43.1	18.7	100.0
		4	15.6	31.9	17.5	35.0	100.0

a. Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functi

b. 47.8% of original grouped cases correctly classified.

c. 45.6% of cross-validated grouped cases correctly classified.

Appendix S **Multiple discriminant analysis – validation of the principal components of airline brand equity and clusters of airline brand perceptions**

Analysis Case Processing Summary			
Unweighted Cases		N	Percent
Valid		550	100.0
Excluded	Missing or out-of-range group codes	0	.0
	At least one missing discriminating variable	0	.0
	Both missing or out-of-range group codes and at least one missing discriminating variable	0	.0
	Total	0	.0
Total		550	100.0

Tests of Equality of Group Means					
	Wilks' Lambda	F	df1	df2	Sig.
Q7.4 I hold ___ in high regard	.693	80.801	3	546	.000
Q7.19 When I think of flying with ___ I have positive thoughts	.737	65.033	3	546	.000
Q7.10___ cares about its customers	.725	69.084	3	546	.000
Q7.7 I am strongly committed to fly with___	.672	88.763	3	546	.000
Q7.14 ___ consistently satisfies me:	.592	125.215	3	546	.000
Q7.21 I talk about___ with my friends	.700	77.898	3	546	.000
Q7.1 I see a lot of advertisements about	.642	101.460	3	546	.000

Stepwise Statistics

Variables Entered/Removed[a],b,c,d

Step	Entered	Min. D Squared		Exact F			
		Statistic	Between Groups	Statistic	df1	df2	Sig.
1	Q7.7 I am strongly committed to fly with___	.066	1 and 3	3.141	1	546.000	.077
2	Q7.19 When I think of flying with ___ I have positive thoughts	.463	3 and 4	16.058	2	545.000	.000
3	Q7.1 I see a lot of advertisements about	2.928	3 and 4	67.622	3	544.000	.000
4	Q7.14 ___ consistently satisfies me:	3.193	1 and 3	37.890	4	543.000	.000
5	Q7.4 I hold ___ in high regard	4.358	2 and 4	74.975	5	542.000	.000
6	Q7.21 I talk about___ with my friends	5.424	2 and 4	77.612	6	541.000	.000
7	Q7.10___ cares about its customers	5.439	2 and 4	66.591	7	540.000	.000

At each step, the variable that maximizes the Mahalanobis distance between the two closest groups is entered.

a. Maximum number of steps is 14.

b. Minimum partial F to enter is 3.84.

c. Maximum partial F to remove is 2.71.

d. F level, tolerance, or VIN insufficient for further computation.

Wilks' Lambda

Step	Number of Variables	Lambda	df1	df2	df3	Exact F				Approximate F			
						Statistic	df1	df2	Sig.	Statistic	df1	df2	Sig.
1	1	.672	1	3	546	88.763	3	546.000	.000				
2	2	.514	2	3	546	71.720	6	1090.000	.000				
3	3	.334	3	3	546					83.801	9	1324.104	.000
4	4	.245	4	3	546					84.155	12	1436.934	.000
5	5	.217	5	3	546					73.771	15	1496.625	.000
6	6	.188	6	3	546					68.523	18	1530.664	.000
7	7	.175	7	3	546					61.586	21	1551.139	.000

Summary of Canonical Discriminant Functions

Eigenvalues

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	1.034[a]	43.1	43.1	.713
2	.838[a]	35.0	78.1	.675
3	.525[a]	21.9	100.0	.587

a. First 3 canonical discriminant functions were used in the analysis.

Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 3	.175	946.334	21	.000
2 through 3	.357	560.351	12	.000
3	.656	229.392	5	.000

Standardized Canonical Discriminant Function Coefficients

	Function		
	1	2	3
Q7.4 I hold ___ in high regard	-.125	-.334	.395
Q7.19 When I think of flying with ___ I have positive thoughts	-.169	-.255	.372
Q7.10___ cares about its customers	-.096	-.190	.449
Q7.7 I am strongly committed to fly with___	.529	.190	-.149
Q7.14 ___ consistently satisfies me:	.565	-.452	-.370
Q7.21 I talk about___ with my friends	.479	.293	-.123
Q7.1 I see a lot of advertisements about	.161	.756	.520

Structure Matrix

	Function		
	1	2	3
Q7.14 ___ consistently satisfies me:	.690*	-.480	.062
Q7.7 I am strongly committed to fly with___	.683*	-.035	.095
Q7.21 I talk about___ with my friends	.634*	.080	.117
Q7.4 I hold ___ in high regard	.260	-.424	.652*
Q7.1 I see a lot of advertisements about	.251	.600	.602*
Q7.19 When I think of flying with ___ I have positive thoughts	.216	-.382	.597*
Q7.10___ cares about its customers	.272	-.391	.577*

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions
Variables ordered by absolute size of correlation within function.

*. Largest absolute correlation between each variable and any dis

Rotation Statistics

Varimax Transformation Matrix

Function	1	2	3
1	.974	.173	.144
2	-.057	.809	-.585
3	-.218	.562	.798

Rotated Standardized Canonical Discriminant Function Coefficients [a]

	Function		
	1	2	3
Q7.14 ___ consistently satisfies me:	.657*	-.476	.050
Q7.7 I am strongly committed to fly with___	.537*	.162	-.154
Q7.21 I talk about___ with my friends	.477*	.251	-.201
Q7.1 I see a lot of advertisements about	.000	.931*	-.004
Q7.4 I hold ___ in high regard	-.189	-.070	.493*
Q7.10___ cares about its customers	-.181	.082	.455*
Q7.19 When I think of flying with ___ I have positive thoughts	-.232	-.027	.421*

Variables ordered by absolute size of correlation within function.

*. Largest absolute coefficient of the variable among the discriminant functions

a. % of variance by function 1 = 42.1, function 2 = 31.1, function 3 = 26.8

Correlations Between Variables and Rotated Functions

	Function		
	1	2	3
Q7.4 I hold ___ in high regard	.135	.068	.806
Q7.19 When I think of flying with ___ I have positive thoughts	.102	.064	.731
Q7.10___ cares about its customers	.162	.055	.729
Q7.7 I am strongly committed to fly with___	.646	.143	.195
Q7.14 ___ consistently satisfies me:	.687	-.234	.430
Q7.21 I talk about___ with my friends	.588	.240	.138
Q7.1 I see a lot of advertisements about	.079	.867	.166

Pooled within-groups correlations between discriminating variables and rotated standardized canonical discriminant functions

Canonical Discriminant Function Coefficients

	Function		
	1	2	3
Q7.4 I hold ___ in high regard	-.358	-.133	.933
Q7.19 When I think of flying with ___ I have positive thoughts	-.406	-.047	.738
Q7.10___ cares about its customers	-.316	.143	.797
Q7.7 I am strongly committed to fly with___	.739	.222	-.212
Q7.14 ___ consistently satisfies me:	1.155	-.836	.089
Q7.21 I talk about___ with my friends	.552	.290	-.232
Q7.1 I see a lot of advertisements about	.001	1.198	-.005
(Constant)	-4.075	-2.298	-8.762

Unstandardized coefficients

Functions at Group Centroids

Cluster Number of Case	Function		
	1	2	3
1	-.344	.244	-1.958
2	1.178	.636	.247
3	-1.506	.596	.314
4	-.067	-1.328	.421

Unstandardized canonical discriminant functions evaluated at group means

Classification Statistics

Classification Processing Summary

Processed		550
Excluded	Missing or out-of-range group codes	0
	At least one missing discriminating variable	0
Used in Output		550

Prior Probabilities for Groups

Cluster Number of Case		Prior	Cases Used in Analysis	
			Unweighted	Weighted
	1	.142	78	78.000
	2	.344	189	189.000
	3	.224	123	123.000
	4	.291	160	160.000
	Total	1.000	550	550.000

Classification Function Coefficients

	Cluster Number of Case			
	1	2	3	4
Q7.4 I hold ___ in high regard	4.409	5.870	6.897	6.739
Q7.19 When I think of flying with ___ I have positive thoughts	3.836	4.827	5.968	5.553
Q7.10___ cares about its customers	3.820	5.150	6.047	5.402
Q7.7 I am strongly committed to fly with___	1.659	2.404	.396	1.009
Q7.14 ___ consistently satisfies me:	4.017	5.643	2.581	5.862
Q7.21 I talk about___ with my friends	.542	.983	-.524	-.314
Q7.1 I see a lot of advertisements about	3.522	3.982	3.932	1.627
(Constant)	-35.813	-60.272	-50.694	-52.423

Fisher's linear discriminant functions

Classification Results[b],c

		Cluster Number of Case	Predicted Group Membership				
			1	2	3	4	Total
Original	Count	1	48	10	15	5	78
		2	2	166	13	8	189
		3	3	6	105	9	123
		4	1	21	15	123	160
	%	1	61.5	12.8	19.2	6.4	100.0
		2	1.1	87.8	6.9	4.2	100.0
		3	2.4	4.9	85.4	7.3	100.0
		4	.6	13.1	9.4	76.9	100.0
Cross-validated[a]	Count	1	47	11	15	5	78
		2	2	166	13	8	189
		3	4	6	104	9	123
		4	1	22	15	122	160
	%	1	60.3	14.1	19.2	6.4	100.0
		2	1.1	87.8	6.9	4.2	100.0
		3	3.3	4.9	84.6	7.3	100.0
		4	.6	13.8	9.4	76.3	100.0

a. Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functi

b. 80.4% of original grouped cases correctly classified.

c. 79.8% of cross-validated grouped cases correctly classified.

Appendix T **Significant customer cluster differences on demographic and socioeconomic variables**

T.1 Gender

fGen What is your gender? * Cluster Number of Case Crosstabulation

			Cluster Number of Case				
			1	2	3	4	Total
fGen What is your gender?	Male	Count	41	101	55	78	275
		Expected Count	39.0	94.5	61.5	80.0	275.0
		% within fGen What is your gender?	14.9%	36.7%	20.0%	28.4%	100.0%
		% within Cluster Number of Case	52.6%	53.4%	44.7%	48.8%	50.0%
		Residual	2.0	6.5	-6.5	-2.0	
	Female	Count	37	88	68	82	275
		Expected Count	39.0	94.5	61.5	80.0	275.0
		% within fGen What is your gender?	13.5%	32.0%	24.7%	29.8%	100.0%
		% within Cluster Number of Case	47.4%	46.6%	55.3%	51.3%	50.0%
		Residual	-2.0	-6.5	6.5	2.0	
Total		Count	78	189	123	160	550
		Expected Count	78.0	189.0	123.0	160.0	550.0
		% within fGen What is your gender?	14.2%	34.4%	22.4%	29.1%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.573[a]	3	.462
Likelihood Ratio	2.577	3	.462
Linear-by-Linear Association	1.042	1	.307
N of Valid Cases	550		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 39.00.

T.2 Trip purpose

dTravel Dummy to fit respondents into on a least full basis * Cluster Number of Case Crosstabulation

			Cluster Number of Case				
			1	2	3	4	Total
dTravel Dummy to fit respondents into on a least full basis	Business	Count	46	115	41	78	280
		Expected Count	39.7	96.2	62.6	81.5	280.0
		% within dTravel Dummy to fit respondents into on a least full basis	16.4%	41.1%	14.6%	27.9%	100.0%
		% within Cluster Number of Case	59.0%	60.8%	33.3%	48.8%	50.9%
		Residual	6.3	18.8	-21.6	-3.5	
	Leisure	Count	32	74	82	82	270
		Expected Count	38.3	92.8	60.4	78.5	270.0
		% within dTravel Dummy to fit respondents into on a least full basis	11.9%	27.4%	30.4%	30.4%	100.0%
		% within Cluster Number of Case	41.0%	39.2%	66.7%	51.3%	49.1%
		Residual	-6.3	-18.8	21.6	3.5	
Total		Count	78	189	123	160	550
		Expected Count	78.0	189.0	123.0	160.0	550.0
		% within dTravel Dummy to fit respondents into on a least full basis	14.2%	34.4%	22.4%	29.1%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	25.000[a]	3	.000
Likelihood Ratio	25.342	3	.000
Linear-by-Linear Association	8.087	1	.004
N of Valid Cases	550		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 38.29.

T.3 Age

agerecode * Cluster Number of Case Crosstabulation

			Cluster Number of Case				Total
			1	2	3	4	
agerecode	18-24	Count	13	20	17	13	63
		Expected Count	8.9	21.6	14.1	18.3	63.0
		% within agerecode	20.6%	31.7%	27.0%	20.6%	100.0%
		% within Cluster Number of Case	16.7%	10.6%	13.8%	8.1%	11.5%
		Residual	4.1	-1.6	2.9	-5.3	
	25-34	Count	7	34	9	19	69
		Expected Count	9.8	23.7	15.4	20.1	69.0
		% within agerecode	10.1%	49.3%	13.0%	27.5%	100.0%
		% within Cluster Number of Case	9.0%	18.0%	7.3%	11.9%	12.5%
		Residual	-2.8	10.3	-6.4	-1.1	
	35-44	Count	14	34	20	37	105
		Expected Count	14.9	36.1	23.5	30.5	105.0
		% within agerecode	13.3%	32.4%	19.0%	35.2%	100.0%
		% within Cluster Number of Case	17.9%	18.0%	16.3%	23.1%	19.1%
		Residual	-.9	-2.1	-3.5	6.5	
	45-54	Count	13	28	18	30	89
		Expected Count	12.6	30.6	19.9	25.9	89.0
		% within agerecode	14.6%	31.5%	20.2%	33.7%	100.0%
		% within Cluster Number of Case	16.7%	14.8%	14.6%	18.8%	16.2%
		Residual	.4	-2.6	-1.9	4.1	
	55-64	Count	31	73	59	61	224
		Expected Count	31.8	77.0	50.1	65.2	224.0
		% within agerecode	13.8%	32.6%	26.3%	27.2%	100.0%
		% within Cluster Number of Case	39.7%	38.6%	48.0%	38.1%	40.7%
		Residual	-.8	-4.0	8.9	-4.2	
Total		Count	78	189	123	160	550
		Expected Count	78.0	189.0	123.0	160.0	550.0
		% within agerecode	14.2%	34.4%	22.4%	29.1%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	17.311[a]	12	.138
Likelihood Ratio	17.103	12	.146
Linear-by-Linear Association	1.213	1	.271
N of Valid Cases	550		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.93.

T.4 : 'Most like to fly with' airlines

recodeq5 * Cluster Number of Case Crosstabulation

			Cluster Number of Case				
			1	2	3	4	Total
recodeq5	BA	Count	38	64	36	43	181
		Expected Count	25.7	62.2	40.5	52.7	181.0
		% within recodeq5	21.0%	35.4%	19.9%	23.8%	100.0%
		% within Cluster Number of Case	48.7%	33.9%	29.3%	26.9%	32.9%
		Residual	12.3	1.8	-4.5	-9.7	
	VS	Count	8	36	18	21	83
		Expected Count	11.8	28.5	18.6	24.1	83.0
		% within recodeq5	9.6%	43.4%	21.7%	25.3%	100.0%
		% within Cluster Number of Case	10.3%	19.0%	14.6%	13.1%	15.1%
		Residual	-3.8	7.5	-.6	-3.1	
	EK	Count	3	33	31	16	83
		Expected Count	11.8	28.5	18.6	24.1	83.0
		% within recodeq5	3.6%	39.8%	37.3%	19.3%	100.0%
		% within Cluster Number of Case	3.8%	17.5%	25.2%	10.0%	15.1%
		Residual	-8.8	4.5	12.4	-8.1	
	SQ	Count	6	9	13	13	41
		Expected Count	5.8	14.1	9.2	11.9	41.0
		% within recodeq5	14.6%	22.0%	31.7%	31.7%	100.0%
		% within Cluster Number of Case	7.7%	4.8%	10.6%	8.1%	7.5%
		Residual	.2	-5.1	3.8	1.1	
	Other	Count	23	47	25	67	162
		Expected Count	23.0	55.7	36.2	47.1	162.0
		% within recodeq5	14.2%	29.0%	15.4%	41.4%	100.0%
		% within Cluster Number of Case	29.5%	24.9%	20.3%	41.9%	29.5%
		Residual	.0	-8.7	-11.2	19.9	
Total		Count	78	189	123	160	550
		Expected Count	78.0	189.0	123.0	160.0	550.0
		% within recodeq5	14.2%	34.4%	22.4%	29.1%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	46.910[a]	12	.000
Likelihood Ratio	47.642	12	.000
Linear-by-Linear Association	11.779	1	.001
N of Valid Cases	550		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.81.

T.5 Travelled in first or business class

Q10 Have you flown Business or First Class at least once in just the past two years? * Cluster Number of Case Crosstabulation

			Cluster Number of Case				
			1	2	3	4	Total
Q10 Have you flown Business or First Class at least once in just the past two years?	Yes	Count	18	77	16	32	143
		Expected Count	20.3	49.1	32.0	41.6	143.0
		% within Q10 Have you flown Business or First Class at least once in just the past two years?	12.6%	53.8%	11.2%	22.4%	100.0%
		% within Cluster Number of Case	23.1%	40.7%	13.0%	20.0%	26.0%
		Residual	-2.3	27.9	-16.0	-9.6	
	No	Count	60	112	107	128	407
		Expected Count	57.7	139.9	91.0	118.4	407.0
		% within Q10 Have you flown Business or First Class at least once in just the past two years?	14.7%	27.5%	26.3%	31.4%	100.0%
		% within Cluster Number of Case	76.9%	59.3%	87.0%	80.0%	74.0%
		Residual	2.3	-27.9	16.0	9.6	
Total		Count	78	189	123	160	550
		Expected Count	78.0	189.0	123.0	160.0	550.0
		% within Q10 Have you flown Business or First Class at least once in just the past two years?	14.2%	34.4%	22.4%	29.1%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	35.476[a]	3	.000
Likelihood Ratio	35.382	3	.000
Linear-by-Linear Association	9.379	1	.002
N of Valid Cases	550		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 20.28.

T.6 Main Decision Maker – leisure trip

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Whochoseairlinesleisure * Cluster Number of Case	544	98.9%	6	1.1%	550	100.0%

Whochoseairlinesleisure * Cluster Number of Case Crosstabulation

			Cluster Number of Case				Total
			1	2	3	4	
Whochoseairlinesleisure	Self	Count	56	164	86	121	427
		Expected Count	60.4	148.4	95.8	122.4	427.0
		% within Whochoseairlinesleisure	13.1%	38.4%	20.1%	28.3%	100.0%
		% within Cluster Number of Case	72.7%	86.8%	70.5%	77.6%	78.5%
		Residual	-4.4	15.6	-9.8	-1.4	
	Spouse and Family members	Count	11	16	17	14	58
		Expected Count	8.2	20.2	13.0	16.6	58.0
		% within Whochoseairlinesleisure	19.0%	27.6%	29.3%	24.1%	100.0%
		% within Cluster Number of Case	14.3%	8.5%	13.9%	9.0%	10.7%
		Residual	2.8	-4.2	4.0	-2.6	
	Friends	Count	3	4	5	7	19
		Expected Count	2.7	6.6	4.3	5.4	19.0
		% within Whochoseairlinesleisure	15.8%	21.1%	26.3%	36.8%	100.0%
		% within Cluster Number of Case	3.9%	2.1%	4.1%	4.5%	3.5%
		Residual	.3	-2.6	.7	1.6	
	Other	Count	7	5	14	14	40
		Expected Count	5.7	13.9	9.0	11.5	40.0
		% within Whochoseairlinesleisure	17.5%	12.5%	35.0%	35.0%	100.0%
		% within Cluster Number of Case	9.1%	2.6%	11.5%	9.0%	7.4%
		Residual	1.3	-8.9	5.0	2.5	
Total		Count	77	189	122	156	544
		Expected Count	77.0	189.0	122.0	156.0	544.0
		% within Whochoseairlinesleisure	14.2%	34.7%	22.4%	28.7%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	17.455[a]	9	.042
Likelihood Ratio	18.858	9	.026
Linear-by-Linear Association	1.933	1	.164
N of Valid Cases	544		

a. 2 cells (12.5%) have expected count less than 5. The minimum expected count is 2.69.

T.7 Main decision maker – business trip

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Whochoseairlinesbusiness * Cluster Number of Case	284	51.6%	266	48.4%	550	100.0%

Whochoseairlinesbusiness * Cluster Number of Case Crosstabulation

			Cluster Number of Case				Total
			1	2	3	4	
Whochoseairlinesbusiness	self	Count	31	74	18	33	156
		Expected Count	25.3	64.8	22.5	43.4	156.0
		% within Whochoseairlinesbusiness	19.9%	47.4%	11.5%	21.2%	100.0%
		% within Cluster Number of Case	67.4%	62.7%	43.9%	41.8%	54.9%
		Residual	5.7	9.2	-4.5	-10.4	
	Travel Dept (Internal)	Count	8	37	17	35	97
		Expected Count	15.7	40.3	14.0	27.0	97.0
		% within Whochoseairlinesbusiness	8.2%	38.1%	17.5%	36.1%	100.0%
		% within Cluster Number of Case	17.4%	31.4%	41.5%	44.3%	34.2%
		Residual	-7.7	-3.3	3.0	8.0	
	Travel Management Company (External)	Count	2	3	3	0	8
		Expected Count	1.3	3.3	1.2	2.2	8.0
		% within Whochoseairlinesbusiness	25.0%	37.5%	37.5%	.0%	100.0%
		% within Cluster Number of Case	4.3%	2.5%	7.3%	.0%	2.8%
		Residual	.7	-.3	1.8	-2.2	
	Other	Count	5	4	3	11	23
		Expected Count	3.7	9.6	3.3	6.4	23.0
		% within Whochoseairlinesbusiness	21.7%	17.4%	13.0%	47.8%	100.0%
		% within Cluster Number of Case	10.9%	3.4%	7.3%	13.9%	8.1%
		Residual	1.3	-5.6	-.3	4.6	
Total		Count	46	118	41	79	284
		Expected Count	46.0	118.0	41.0	79.0	284.0
		% within Whochoseairlinesbusiness	16.2%	41.5%	14.4%	27.8%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	25.673[a]	9	.002
Likelihood Ratio	27.963	9	.001
Linear-by-Linear Association	7.424	1	.006
N of Valid Cases	284		

a. 6 cells (37.5%) have expected count less than 5. The minimum expected count is 1.15.

T.8 Trip frequency – short-haul leisure

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Q13A LeisureShort haul flights (less than 5 hours) * Cluster Number of Case	544	98.9%	6	1.1%	550	100.0%

Q13A LeisureShort haul flights (less than 5 hours) * Cluster Number of Case Crosstabulation

			Cluster Number of Case				
			1	2	3	4	Total
Q13A LeisureShort haul flights (less than 5 hours)	1-2 trips	Count	38	98	67	81	284
		Expected Count	40.2	98.7	63.7	81.4	284.0
		% within Q13A LeisureShort haul flights (less than 5 hours)	13.4%	34.5%	23.6%	28.5%	100.0%
		% within Cluster Number of Case	49.4%	51.9%	54.9%	51.9%	52.2%
		Residual	-2.2	-.7	3.3	-.4	
	3-5 trips	Count	22	43	30	40	135
		Expected Count	19.1	46.9	30.3	38.7	135.0
		% within Q13A LeisureShort haul flights (less than 5 hours)	16.3%	31.9%	22.2%	29.6%	100.0%
		% within Cluster Number of Case	28.6%	22.8%	24.6%	25.6%	24.8%
		Residual	2.9	-3.9	-.3	1.3	
	6-10 trips	Count	4	21	2	5	32
		Expected Count	4.5	11.1	7.2	9.2	32.0
		% within Q13A LeisureShort haul flights (less than 5 hours)	12.5%	65.6%	6.3%	15.6%	100.0%
		% within Cluster Number of Case	5.2%	11.1%	1.6%	3.2%	5.9%
		Residual	-.5	9.9	-5.2	-4.2	
	11+ trips	Count	3	7	3	1	14
		Expected Count	2.0	4.9	3.1	4.0	14.0
		% within Q13A LeisureShort haul flights (less than 5 hours)	21.4%	50.0%	21.4%	7.1%	100.0%
		% within Cluster Number of Case	3.9%	3.7%	2.5%	.6%	2.6%
		Residual	1.0	2.1	-.1	-3.0	
	none	Count	10	20	20	29	79
		Expected Count	11.2	27.4	17.7	22.7	79.0
		% within Q13A LeisureShort haul flights (less than 5 hours)	12.7%	25.3%	25.3%	36.7%	100.0%
		% within Cluster Number of Case	13.0%	10.6%	16.4%	18.6%	14.5%
		Residual	-1.2	-7.4	2.3	6.3	
Total		Count	77	189	122	156	544
		Expected Count	77.0	189.0	122.0	156.0	544.0
		% within Q13A LeisureShort haul flights (less than 5 hours)	14.2%	34.7%	22.4%	28.7%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.536[a]	12	.024
Likelihood Ratio	24.437	12	.018
Linear-by-Linear Association	.231	1	.631
N of Valid Cases	544		

a. 5 cells (25.0%) have expected count less than 5. The minimum expected count is 1.98.

T.9 Trip frequency – leisure long-haul

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Q13B LeisureLong haul flights (more than 5 hours) * Cluster Number of Case	544	98.9%	6	1.1%	550	100.0%

Q13B LeisureLong haul flights (more than 5 hours) * Cluster Number of Case Crosstabulation

			Cluster Number of Case				Total
			1	2	3	4	
Q13B LeisureLong haul flights (more than 5 hours)	1-2 trips	Count	32	78	42	57	209
		Expected Count	29.6	72.6	46.9	59.9	209.0
		% within Q13B LeisureLong haul flights (more than 5 hours)	15.3%	37.3%	20.1%	27.3%	100.0%
		% within Cluster Number of Case	41.6%	41.3%	34.4%	36.5%	38.4%
		Residual	2.4	5.4	-4.9	-2.9	
	3-5 trips	Count	5	23	7	12	47
		Expected Count	6.7	16.3	10.5	13.5	47.0
		% within Q13B LeisureLong haul flights (more than 5 hours)	10.6%	48.9%	14.9%	25.5%	100.0%
		% within Cluster Number of Case	6.5%	12.2%	5.7%	7.7%	8.6%
		Residual	-1.7	6.7	-3.5	-1.5	
	6-10 trips	Count	0	3	1	0	4
		Expected Count	.6	1.4	.9	1.1	4.0
		% within Q13B LeisureLong haul flights (more than 5 hours)	.0%	75.0%	25.0%	.0%	100.0%
		% within Cluster Number of Case	.0%	1.6%	.8%	.0%	.7%
		Residual	-.6	1.6	.1	-1.1	
	11+ trips	Count	0	7	0	0	7
		Expected Count	1.0	2.4	1.6	2.0	7.0
		% within Q13B LeisureLong haul flights (more than 5 hours)	.0%	100.0%	.0%	.0%	100.0%
		% within Cluster Number of Case	.0%	3.7%	.0%	.0%	1.3%
		Residual	-1.0	4.6	-1.6	-2.0	
	none	Count	40	78	72	87	277
		Expected Count	39.2	96.2	62.1	79.4	277.0
		% within Q13B LeisureLong haul flights (more than 5 hours)	14.4%	28.2%	26.0%	31.4%	100.0%
		% within Cluster Number of Case	51.9%	41.3%	59.0%	55.8%	50.9%
		Residual	.8	-18.2	9.9	7.6	
Total		Count	77	189	122	156	544
		Expected Count	77.0	189.0	122.0	156.0	544.0
		% within Q13B LeisureLong haul flights (more than 5 hours)	14.2%	34.7%	22.4%	28.7%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	28.237[a]	12	.005
Likelihood Ratio	31.178	12	.002
Linear-by-Linear Association	2.619	1	.106
N of Valid Cases	544		

a. 8 cells (40.0%) have expected count less than 5. The minimum expected count is .57.

T.10 Trip frequency – short-haul business trips

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Q13C BusinessShort haul flights (less than 5 hours) * Cluster Number of Case	284	51.6%	266	48.4%	550	100.0%

Q13C BusinessShort haul flights (less than 5 hours) * Cluster Number of Case Crosstabulation

			Cluster Number of Case				Total
			1	2	3	4	
Q13C BusinessShort haul flights (less than 5 hours)	1-2 trips	Count	23	49	25	28	125
		Expected Count	20.2	51.9	18.0	34.8	125.0
		% within Q13C BusinessShort haul flights (less than 5 hours)	18.4%	39.2%	20.0%	22.4%	100.0%
		% within Cluster Number of Case	50.0%	41.5%	61.0%	35.4%	44.0%
		Residual	2.8	-2.9	7.0	-6.8	
	3-5 trips	Count	4	21	5	15	45
		Expected Count	7.3	18.7	6.5	12.5	45.0
		% within Q13C BusinessShort haul flights (less than 5 hours)	8.9%	46.7%	11.1%	33.3%	100.0%
		% within Cluster Number of Case	8.7%	17.8%	12.2%	19.0%	15.8%
		Residual	-3.3	2.3	-1.5	2.5	
	6-10 trips	Count	2	9	1	5	17
		Expected Count	2.8	7.1	2.5	4.7	17.0
		% within Q13C BusinessShort haul flights (less than 5 hours)	11.8%	52.9%	5.9%	29.4%	100.0%
		% within Cluster Number of Case	4.3%	7.6%	2.4%	6.3%	6.0%
		Residual	-.8	1.9	-1.5	.3	
	11+ trips	Count	2	12	2	4	20
		Expected Count	3.2	8.3	2.9	5.6	20.0
		% within Q13C BusinessShort haul flights (less than 5 hours)	10.0%	60.0%	10.0%	20.0%	100.0%
		% within Cluster Number of Case	4.3%	10.2%	4.9%	5.1%	7.0%
		Residual	-1.2	3.7	-.9	-1.6	
	none	Count	15	27	8	27	77
		Expected Count	12.5	32.0	11.1	21.4	77.0
		% within Q13C BusinessShort haul flights (less than 5 hours)	19.5%	35.1%	10.4%	35.1%	100.0%
		% within Cluster Number of Case	32.6%	22.9%	19.5%	34.2%	27.1%
		Residual	2.5	-5.0	-3.1	5.6	
Total		Count	46	118	41	79	284
		Expected Count	46.0	118.0	41.0	79.0	284.0
		% within Q13C BusinessShort haul flights (less than 5 hours)	16.2%	41.5%	14.4%	27.8%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.202[a]	12	.231
Likelihood Ratio	15.460	12	.217
Linear-by-Linear Association	.438	1	.508
N of Valid Cases	284		

a. 5 cells (25.0%) have expected count less than 5. The minimum expected count is 2.45.

T.11 Trip frequency –long-haul business

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Q13D BusinessLong haul flights (more than 5 hours) * Cluster Number of Case	284	51.6%	266	48.4%	550	100.0%

Q13D BusinessLong haul flights (more than 5 hours) * Cluster Number of Case Crosstabulation

			Cluster Number of Case				
			1	2	3	4	Total
Q13D BusinessLong haul flights (more than 5 hours)	1-2 trips	Count	7	33	6	9	55
		Expected Count	8.9	22.9	7.9	15.3	55.0
		% within Q13D BusinessLong haul flights (more than 5 hours)	12.7%	60.0%	10.9%	16.4%	100.0%
		% within Cluster Number of Case	15.2%	28.0%	14.6%	11.4%	19.4%
		Residual	-1.9	10.1	-1.9	-6.3	
	3-5 trips	Count	1	11	2	3	17
		Expected Count	2.8	7.1	2.5	4.7	17.0
		% within Q13D BusinessLong haul flights (more than 5 hours)	5.9%	64.7%	11.8%	17.6%	100.0%
		% within Cluster Number of Case	2.2%	9.3%	4.9%	3.8%	6.0%
		Residual	-1.8	3.9	-.5	-1.7	
	6-10 trips	Count	1	3	1	0	5
		Expected Count	.8	2.1	.7	1.4	5.0
		% within Q13D BusinessLong haul flights (more than 5 hours)	20.0%	60.0%	20.0%	.0%	100.0%
		% within Cluster Number of Case	2.2%	2.5%	2.4%	.0%	1.8%
		Residual	.2	.9	.3	-1.4	
	11+ trips	Count	3	7	1	1	12
		Expected Count	1.9	5.0	1.7	3.3	12.0
		% within Q13D BusinessLong haul flights (more than 5 hours)	25.0%	58.3%	8.3%	8.3%	100.0%
		% within Cluster Number of Case	6.5%	5.9%	2.4%	1.3%	4.2%
		Residual	1.1	2.0	-.7	-2.3	
	none	Count	34	64	31	66	195
		Expected Count	31.6	81.0	28.2	54.2	195.0
		% within Q13D BusinessLong haul flights (more than 5 hours)	17.4%	32.8%	15.9%	33.8%	100.0%
		% within Cluster Number of Case	73.9%	54.2%	75.6%	83.5%	68.7%
		Residual	2.4	-17.0	2.8	11.8	
Total		Count	46	118	41	79	284
		Expected Count	46.0	118.0	41.0	79.0	284.0
		% within Q13D BusinessLong haul flights (more than 5 hours)	16.2%	41.5%	14.4%	27.8%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.894[a]	12	.021
Likelihood Ratio	25.956	12	.011
Linear-by-Linear Association	5.486	1	.019
N of Valid Cases	284		

a. 11 cells (55.0%) have expected count less than 5. The minimum expected count is .72.

T.12 Employment status

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Q14 Which of these describes your current working Status? * Cluster Number of Case	550	100.0%	0	.0%	550	100.0%

Q14 Which of these describes your current working Status? * Cluster Number of Case Crosstabulation

			Cluster Number of Case				
			1	2	3	4	Total
Q14 Which of these describes your current working Status?	Employed full-time	Count	31	91	45	75	242
		Expected Count	34.3	83.2	54.1	70.4	242.0
		% within Q14 Which of these describes your current working Status?	12.8%	37.6%	18.6%	31.0%	100.0%
		% within Cluster Number of Case	39.7%	48.1%	36.6%	46.9%	44.0%
		Residual	-3.3	7.8	-9.1	4.6	
	Employed part-time	Count	8	23	12	11	54
		Expected Count	7.7	18.6	12.1	15.7	54.0
		% within Q14 Which of these describes your current working Status?	14.8%	42.6%	22.2%	20.4%	100.0%
		% within Cluster Number of Case	10.3%	12.2%	9.8%	6.9%	9.8%
		Residual	.3	4.4	-.1	-4.7	
	Self-employed	Count	7	15	8	15	45
		Expected Count	6.4	15.5	10.1	13.1	45.0
		% within Q14 Which of these describes your current working Status?	15.6%	33.3%	17.8%	33.3%	100.0%
		% within Cluster Number of Case	9.0%	7.9%	6.5%	9.4%	8.2%
		Residual	.6	-.5	-2.1	1.9	
	Housewife/husband	Count	2	4	5	10	21
		Expected Count	3.0	7.2	4.7	6.1	21.0
		% within Q14 Which of these describes your current working Status?	9.5%	19.0%	23.8%	47.6%	100.0%
		% within Cluster Number of Case	2.6%	2.1%	4.1%	6.3%	3.8%
		Residual	-1.0	-3.2	.3	3.9	
	Semi-retired	Count	2	2	1	4	9
		Expected Count	1.3	3.1	2.0	2.6	9.0
		% within Q14 Which of these describes your current working Status?	22.2%	22.2%	11.1%	44.4%	100.0%
		% within Cluster Number of Case	2.6%	1.1%	.8%	2.5%	1.6%
		Residual	.7	-1.1	-1.0	1.4	
	Retired	Count	22	45	43	40	150
		Expected Count	21.3	51.5	33.5	43.6	150.0
		% within Q14 Which of these describes your current working Status?	14.7%	30.0%	28.7%	26.7%	100.0%
		% within Cluster Number of Case	28.2%	23.8%	35.0%	25.0%	27.3%
		Residual	.7	-6.5	9.5	-3.6	
	Student	Count	5	7	8	3	23
		Expected Count	3.3	7.9	5.1	6.7	23.0
		% within Q14 Which of these describes your current working Status?	21.7%	30.4%	34.8%	13.0%	100.0%
		% within Cluster Number of Case	6.4%	3.7%	6.5%	1.9%	4.2%
		Residual	1.7	-.9	2.9	-3.7	
	Unemployed	Count	1	2	1	2	6
		Expected Count	.9	2.1	1.3	1.7	6.0
		% within Q14 Which of these describes your current working Status?	16.7%	33.3%	16.7%	33.3%	100.0%
		% within Cluster Number of Case	1.3%	1.1%	.8%	1.3%	1.1%
		Residual	.1	-.1	-.3	.3	
Total		Count	78	189	123	160	550
		Expected Count	78.0	189.0	123.0	160.0	550.0
		% within Q14 Which of these describes your current working Status?	14.2%	34.4%	22.4%	29.1%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	21.080[a]	21	.454
Likelihood Ratio	21.197	21	.447
Linear-by-Linear Association	.013	1	.909
N of Valid Cases	550		

a. 11 cells (34.4%) have expected count less than 5. The minimum expected count is .85.

T.13 Organisation size

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Q15 How many employees work for your organisation? * Cluster Number of Case	341	62.0%	209	38.0%	550	100.0%

Q15 How many employees work for your organisation? * Cluster Number of Case Crosstabulation

			Cluster Number of Case				Total
			1	2	3	4	
Q15 How many employees work for your organisation?	1-24 employees	Count	11	28	16	30	85
		Expected Count	11.5	32.2	16.2	25.2	85.0
		% within Q15 How many employees work for your organisation?	12.9%	32.9%	18.8%	35.3%	100.0%
		% within Cluster Number of Case	23.9%	21.7%	24.6%	29.7%	24.9%
		Residual	-.5	-4.2	-.2	4.8	
	25-99 employees	Count	11	20	4	9	44
		Expected Count	5.9	16.6	8.4	13.0	44.0
		% within Q15 How many employees work for your organisation?	25.0%	45.5%	9.1%	20.5%	100.0%
		% within Cluster Number of Case	23.9%	15.5%	6.2%	8.9%	12.9%
		Residual	5.1	3.4	-4.4	-4.0	
	100-999 employees	Count	12	28	15	23	78
		Expected Count	10.5	29.5	14.9	23.1	78.0
		% within Q15 How many employees work for your organisation?	15.4%	35.9%	19.2%	29.5%	100.0%
		% within Cluster Number of Case	26.1%	21.7%	23.1%	22.8%	22.9%
		Residual	1.5	-1.5	.1	-.1	
	1000-4999 employees	Count	2	18	9	17	46
		Expected Count	6.2	17.4	8.8	13.6	46.0
		% within Q15 How many employees work for your organisation?	4.3%	39.1%	19.6%	37.0%	100.0%
		% within Cluster Number of Case	4.3%	14.0%	13.8%	16.8%	13.5%
		Residual	-4.2	.6	.2	3.4	
	5000 and more employees	Count	10	30	18	19	77
		Expected Count	10.4	29.1	14.7	22.8	77.0
		% within Q15 How many employees work for your organisation?	13.0%	39.0%	23.4%	24.7%	100.0%
		% within Cluster Number of Case	21.7%	23.3%	27.7%	18.8%	22.6%
		Residual	-.4	.9	3.3	-3.8	
	Do not know	Count	0	5	3	3	11
		Expected Count	1.5	4.2	2.1	3.3	11.0
		% within Q15 How many employees work for your organisation?	.0%	45.5%	27.3%	27.3%	100.0%
		% within Cluster Number of Case	.0%	3.9%	4.6%	3.0%	3.2%
		Residual	-1.5	.8	.9	-.3	
Total		Count	46	129	65	101	341
		Expected Count	46.0	129.0	65.0	101.0	341.0
		% within Q15 How many employees work for your organisation?	13.5%	37.8%	19.1%	29.6%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	17.512[a]	15	.289
Likelihood Ratio	19.651	15	.186
Linear-by-Linear Association	.049	1	.825
N of Valid Cases	341		

a. 4 cells (16.7%) have expected count less than 5. The minimum expected count is 1.48.

T.14 Socio-economic groups

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Social The respondent's social grade. (Irrelevant for all non UK and Irish respondents.) * Cluster Number of Case	550	100.0%	0	.0%	550	100.0%

Social The respondent's social grade. (Irrelevant for all non UK and Irish respondents.) * Cluster Number of Case Crosstabulation							
			Cluster Number of Case				
			1	2	3	4	Total
Social The respondent's social grade. (Irrelevant for all non UK and Irish respondents.)	A	Count	8	19	16	19	62
		Expected Count	8.8	21.3	13.9	18.0	62.0
		% within Social The respondent's social grade. (Irrelevant for all non UK and Irish respondents.)	12.9%	30.6%	25.8%	30.6%	100.0%
		% within Cluster Number of Case	10.3%	10.1%	13.0%	11.9%	11.3%
		Residual	-.8	-2.3	2.1	1.0	
	B	Count	21	58	50	56	185
		Expected Count	26.2	63.6	41.4	53.8	185.0
		% within Social The respondent's social grade. (Irrelevant for all non UK and Irish respondents.)	11.4%	31.4%	27.0%	30.3%	100.0%
		% within Cluster Number of Case	26.9%	30.7%	40.7%	35.0%	33.6%
		Residual	-5.2	-5.6	8.6	2.2	
	C1	Count	22	66	36	51	175
		Expected Count	24.8	60.1	39.1	50.9	175.0
		% within Social The respondent's social grade. (Irrelevant for all non UK and Irish respondents.)	12.6%	37.7%	20.6%	29.1%	100.0%
		% within Cluster Number of Case	28.2%	34.9%	29.3%	31.9%	31.8%
		Residual	-2.8	5.9	-3.1	.1	
	C2	Count	13	17	6	15	51
		Expected Count	7.2	17.5	11.4	14.8	51.0
		% within Social The respondent's social grade. (Irrelevant for all non UK and Irish respondents.)	25.5%	33.3%	11.8%	29.4%	100.0%
		% within Cluster Number of Case	16.7%	9.0%	4.9%	9.4%	9.3%
		Residual	5.8	-.5	-5.4	.2	
	D	Count	4	5	7	7	23
		Expected Count	3.3	7.9	5.1	6.7	23.0
		% within Social The respondent's social grade. (Irrelevant for all non UK and Irish respondents.)	17.4%	21.7%	30.4%	30.4%	100.0%
		% within Cluster Number of Case	5.1%	2.6%	5.7%	4.4%	4.2%
		Residual	.7	-2.9	1.9	.3	
	E	Count	10	24	8	12	54
		Expected Count	7.7	18.6	12.1	15.7	54.0
		% within Social The respondent's social grade. (Irrelevant for all non UK and Irish respondents.)	18.5%	44.4%	14.8%	22.2%	100.0%
		% within Cluster Number of Case	12.8%	12.7%	6.5%	7.5%	9.8%
		Residual	2.3	5.4	-4.1	-3.7	
Total		Count	78	189	123	160	550
		Expected Count	78.0	189.0	123.0	160.0	550.0
		% within Social The respondent's social grade. (Irrelevant for all non UK and Irish respondents.)	14.2%	34.4%	22.4%	29.1%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	18.926[a]	15	.217
Likelihood Ratio	18.702	15	.228
Linear-by-Linear Association	5.117	1	.024
N of Valid Cases	550		

a. 1 cells (4.2%) have expected count less than 5. The minimum expected count is 3.26.

T.15 Nationality

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Q16 What is your nationality? * Cluster Number of Case	550	100.0%	0	.0%	550	100.0%

Q16 What is your nationality? * Cluster Number of Case Crosstabulation

			Cluster Number of Case				
			1	2	3	4	Total
Q16 What is your nationality?	British	Count	76	170	118	153	517
		Expected Count	73.3	177.7	115.6	150.4	517.0
		% within Q16 What is your nationality?	14.7%	32.9%	22.8%	29.6%	100.0%
		% within Cluster Number of Case	97.4%	89.9%	95.9%	95.6%	94.0%
		Residual	2.7	-7.7	2.4	2.6	
	Citizen of EU nations	Count	2	14	4	5	25
		Expected Count	3.5	8.6	5.6	7.3	25.0
		% within Q16 What is your nationality?	8.0%	56.0%	16.0%	20.0%	100.0%
		% within Cluster Number of Case	2.6%	7.4%	3.3%	3.1%	4.5%
		Residual	-1.5	5.4	-1.6	-2.3	
	Others	Count	0	5	1	2	8
		Expected Count	1.1	2.7	1.8	2.3	8.0
		% within Q16 What is your nationality?	.0%	62.5%	12.5%	25.0%	100.0%
		% within Cluster Number of Case	.0%	2.6%	.8%	1.3%	1.5%
		Residual	-1.1	2.3	-.8	-.3	
Total		Count	78	189	123	160	550
		Expected Count	78.0	189.0	123.0	160.0	550.0
		% within Q16 What is your nationality?	14.2%	34.4%	22.4%	29.1%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.136[a]	6	.166
Likelihood Ratio	9.695	6	.138
Linear-by-Linear Association	.461	1	.497
N of Valid Cases	550		

a. 5 cells (41.7%) have expected count less than 5. The minimum expected count is 1.13.

T.16 Age and invalid/outliers cases

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Cases * Age	1031	100.0%	0	.0%	1031	100.0%

Cases * Age Crosstabulation

			Age						
			18-24	25-34	35-44	45-54	55-64	65 and older	Total
Cases	valid	Count	63	69	105	89	100	124	550
		Expected Count	54.4	77.9	114.7	87.5	87.5	128.0	550.0
		% within Cases	11.5%	12.5%	19.1%	16.2%	18.2%	22.5%	100.0%
		% within Age	61.8%	47.3%	48.8%	54.3%	61.0%	51.7%	53.3%
		% of Total	6.1%	6.7%	10.2%	8.6%	9.7%	12.0%	53.3%
		Residual	8.6	-8.9	-9.7	1.5	12.5	-4.0	
	invalid	Count	39	77	110	75	64	116	481
		Expected Count	47.6	68.1	100.3	76.5	76.5	112.0	481.0
		% within Cases	8.1%	16.0%	22.9%	15.6%	13.3%	24.1%	100.0%
		% within Age	38.2%	52.7%	51.2%	45.7%	39.0%	48.3%	46.7%
		% of Total	3.8%	7.5%	10.7%	7.3%	6.2%	11.3%	46.7%
		Residual	-8.6	8.9	9.7	-1.5	-12.5	4.0	
Total		Count	102	146	215	164	164	240	1031
		Expected Count	102.0	146.0	215.0	164.0	164.0	240.0	1031.0
		% within Cases	9.9%	14.2%	20.9%	15.9%	15.9%	23.3%	100.0%
		% within Age	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	9.9%	14.2%	20.9%	15.9%	15.9%	23.3%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.997[a]	5	.051
Likelihood Ratio	11.064	5	.050
Linear-by-Linear Association	.054	1	.816
N of Valid Cases	1031		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 47.59.

T.17 Employment status and invalid/outliers

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Cases * Q14 Which of these describes your current working Status?	1031	100.0%	0	.0%	1031	100.0%

Cases * Q14 Which of these describes your current working Status? Crosstabulation

			Q14 Which of these describes your current working Status?								
			Employed full-time	Employed part-time	Self-employed	Housewife/husband	Semi-retired	Retired	Student	Unemployed	Total
Cases	valid	Count	242	54	45	21	9	150	23	6	550
		Expected Count	247.0	49.6	45.9	22.9	9.6	145.1	20.3	9.6	550.0
		% within Cases	44.0%	9.8%	8.2%	3.8%	1.6%	27.3%	4.2%	1.1%	100.0%
		% within Q14 Which of these describes your current working Status?	52.3%	58.1%	52.3%	48.8%	50.0%	55.1%	60.5%	33.3%	53.3%
		% of Total	23.5%	5.2%	4.4%	2.0%	.9%	14.5%	2.2%	.6%	53.3%
		Residual	-5.0	4.4	-.9	-1.9	-.6	4.9	2.7	-3.6	
	invalid	Count	221	39	41	22	9	122	15	12	481
		Expected Count	216.0	43.4	40.1	20.1	8.4	126.9	17.7	8.4	481.0
		% within Cases	45.9%	8.1%	8.5%	4.6%	1.9%	25.4%	3.1%	2.5%	100.0%
		% within Q14 Which of these describes your current working Status?	47.7%	41.9%	47.7%	51.2%	50.0%	44.9%	39.5%	66.7%	46.7%
		% of Total	21.4%	3.8%	4.0%	2.1%	.9%	11.8%	1.5%	1.2%	46.7%
		Residual	5.0	-4.4	.9	1.9	.6	-4.9	-2.7	3.6	
Total		Count	463	93	86	43	18	272	38	18	1031
		Expected Count	463.0	93.0	86.0	43.0	18.0	272.0	38.0	18.0	1031.0
		% within Cases	44.9%	9.0%	8.3%	4.2%	1.7%	26.4%	3.7%	1.7%	100.0%
		% within Q14 Which of these describes your current working Status?	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	44.9%	9.0%	8.3%	4.2%	1.7%	26.4%	3.7%	1.7%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.555[a]	7	.593
Likelihood Ratio	5.594	7	.588
Linear-by-Linear Association	.073	1	.787
N of Valid Cases	1031		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.40.

Appendix U **Significant cluster differences on use of airline premium products**

U.1 Free tickets from frequent flyer programme

Crosstab

			Cluster Number of Case				Total
			1	2	3	4	
Q11.1 Free tickets from Frequent Flyer programme: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	Haven't used	Count	11	48	8	17	84
		Expected Count	10.6	45.2	9.4	18.8	84.0
		% within Q11.1 Free tickets from Frequent Flyer programme: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	13.1%	57.1%	9.5%	20.2%	100.0%
		% within Cluster Number of Case	61.1%	62.3%	50.0%	53.1%	58.7%
		% of Total	7.7%	33.6%	5.6%	11.9%	58.7%
		Residual	.4	2.8	-1.4	-1.8	
	Have used	Count	4	21	5	12	42
		Expected Count	5.3	22.6	4.7	9.4	42.0
		% within Q11.1 Free tickets from Frequent Flyer programme: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	9.5%	50.0%	11.9%	28.6%	100.0%
		% within Cluster Number of Case	22.2%	27.3%	31.3%	37.5%	29.4%
		% of Total	2.8%	14.7%	3.5%	8.4%	29.4%
		Residual	-1.3	-1.6	.3	2.6	
	Don't recall using	Count	3	8	3	3	17
		Expected Count	2.1	9.2	1.9	3.8	17.0
		% within Q11.1 Free tickets from Frequent Flyer programme: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	17.6%	47.1%	17.6%	17.6%	100.0%
		% within Cluster Number of Case	16.7%	10.4%	18.8%	9.4%	11.9%
		% of Total	2.1%	5.6%	2.1%	2.1%	11.9%
		Residual	.9	-1.2	1.1	-.8	
Total		Count	18	77	16	32	143
		Expected Count	18.0	77.0	16.0	32.0	143.0
		% within Q11.1 Free tickets from Frequent Flyer programme: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	12.6%	53.8%	11.2%	22.4%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	12.6%	53.8%	11.2%	22.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.029[a]	6	.805
Likelihood Ratio	2.901	6	.821
Linear-by-Linear Association	.248	1	.619
N of Valid Cases	143		

a. 4 cells (33.3%) have expected count less than 5. The minimum expected count is 1.90.

U.2 Priority reservation line

Crosstab

			Cluster Number of Case				Total
			1	2	3	4	
Q11.2 Priority reservation line: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	Haven't used	Count	6	27	8	15	56
		Expected Count	7.0	30.2	6.3	12.5	56.0
		% within Q11.2 Priority reservation line: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	10.7%	48.2%	14.3%	26.8%	100.0%
		% within Cluster Number of Case	33.3%	35.1%	50.0%	46.9%	39.2%
		% of Total	4.2%	18.9%	5.6%	10.5%	39.2%
		Residual	-1.0	-3.2	1.7	2.5	
	Have used	Count	6	38	6	14	64
		Expected Count	8.1	34.5	7.2	14.3	64.0
		% within Q11.2 Priority reservation line: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	9.4%	59.4%	9.4%	21.9%	100.0%
		% within Cluster Number of Case	33.3%	49.4%	37.5%	43.8%	44.8%
		% of Total	4.2%	26.6%	4.2%	9.8%	44.8%
		Residual	-2.1	3.5	-1.2	-.3	
	Don't recall using	Count	6	12	2	3	23
		Expected Count	2.9	12.4	2.6	5.1	23.0
		% within Q11.2 Priority reservation line: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	26.1%	52.2%	8.7%	13.0%	100.0%
		% within Cluster Number of Case	33.3%	15.6%	12.5%	9.4%	16.1%
		% of Total	4.2%	8.4%	1.4%	2.1%	16.1%
		Residual	3.1	-.4	-.6	-2.1	
Total		Count	18	77	16	32	143
		Expected Count	18.0	77.0	16.0	32.0	143.0
		% within Q11.2 Priority reservation line: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	12.6%	53.8%	11.2%	22.4%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	12.6%	53.8%	11.2%	22.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.901[a]	6	.330
Likelihood Ratio	6.279	6	.393
Linear-by-Linear Association	3.625	1	.057
N of Valid Cases	143		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 2.57.

U.3 Exclusive check-in desks

Crosstab

			Cluster Number of Case				Total
			1	2	3	4	
Q11.3 Exclusive check in desks: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	Haven't used	Count	5	13	2	6	26
		Expected Count	3.3	14.0	2.9	5.8	26.0
		% within Q11.3 Exclusive check in desks: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	19.2%	50.0%	7.7%	23.1%	100.0%
		% within Cluster Number of Case	27.8%	16.9%	12.5%	18.8%	18.2%
		% of Total	3.5%	9.1%	1.4%	4.2%	18.2%
		Residual	1.7	-1.0	-.9	.2	
	Have used	Count	11	61	14	24	110
		Expected Count	13.8	59.2	12.3	24.6	110.0
		% within Q11.3 Exclusive check in desks: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	10.0%	55.5%	12.7%	21.8%	100.0%
		% within Cluster Number of Case	61.1%	79.2%	87.5%	75.0%	76.9%
		% of Total	7.7%	42.7%	9.8%	16.8%	76.9%
		Residual	-2.8	1.8	1.7	-.6	
	Don't recall using	Count	2	3	0	2	7
		Expected Count	.9	3.8	.8	1.6	7.0
		% within Q11.3 Exclusive check in desks: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	28.6%	42.9%	.0%	28.6%	100.0%
		% within Cluster Number of Case	11.1%	3.9%	.0%	6.3%	4.9%
		% of Total	1.4%	2.1%	.0%	1.4%	4.9%
		Residual	1.1	-.8	-.8	.4	
Total		Count	18	77	16	32	143
		Expected Count	18.0	77.0	16.0	32.0	143.0
		% within Q11.3 Exclusive check in desks: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	12.6%	53.8%	11.2%	22.4%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	12.6%	53.8%	11.2%	22.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.640[a]	6	.591
Likelihood Ratio	4.989	6	.545
Linear-by-Linear Association	.053	1	.818
N of Valid Cases	143		

a. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .78.

U.4 Priority boarding

Crosstab

			Cluster Number of Case				Total
			1	2	3	4	
Q11.4 Priority boarding: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	Haven't used	Count	3	11	2	4	20
		Expected Count	2.5	10.8	2.2	4.5	20.0
		% within Q11.4 Priority boarding: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	15.0%	55.0%	10.0%	20.0%	100.0%
		% within Cluster Number of Case	16.7%	14.3%	12.5%	12.5%	14.0%
		% of Total	2.1%	7.7%	1.4%	2.8%	14.0%
		Residual	.5	.2	-.2	-.5	
	Have used	Count	13	61	14	27	115
		Expected Count	14.5	61.9	12.9	25.7	115.0
		% within Q11.4 Priority boarding: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	11.3%	53.0%	12.2%	23.5%	100.0%
		% within Cluster Number of Case	72.2%	79.2%	87.5%	84.4%	80.4%
		% of Total	9.1%	42.7%	9.8%	18.9%	80.4%
		Residual	-1.5	-.9	1.1	1.3	
	Don't recall using	Count	2	5	0	1	8
		Expected Count	1.0	4.3	.9	1.8	8.0
		% within Q11.4 Priority boarding: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	25.0%	62.5%	.0%	12.5%	100.0%
		% within Cluster Number of Case	11.1%	6.5%	.0%	3.1%	5.6%
		% of Total	1.4%	3.5%	.0%	.7%	5.6%
		Residual	1.0	.7	-.9	-.8	
Total		Count	18	77	16	32	143
		Expected Count	18.0	77.0	16.0	32.0	143.0
		% within Q11.4 Priority boarding: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	12.6%	53.8%	11.2%	22.4%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	12.6%	53.8%	11.2%	22.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.834[a]	6	.829
Likelihood Ratio	3.569	6	.735
Linear-by-Linear Association	.126	1	.723
N of Valid Cases	143		

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is .90.

U.5 Exclusive airport lounge

Crosstab

			Cluster Number of Case				Total
			1	2	3	4	
Q11.5 Exclusive airport lounge: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	Haven't used	Count	3	15	3	7	28
		Expected Count	3.5	15.1	3.1	6.3	28.0
		% within Q11.5 Exclusive airport lounge: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	10.7%	53.6%	10.7%	25.0%	100.0%
		% within Cluster Number of Case	16.7%	19.5%	18.8%	21.9%	19.6%
		% of Total	2.1%	10.5%	2.1%	4.9%	19.6%
		Residual	-.5	-.1	-.1	.7	
	Have used	Count	12	60	12	22	106
		Expected Count	13.3	57.1	11.9	23.7	106.0
		% within Q11.5 Exclusive airport lounge: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	11.3%	56.6%	11.3%	20.8%	100.0%
		% within Cluster Number of Case	66.7%	77.9%	75.0%	68.8%	74.1%
		% of Total	8.4%	42.0%	8.4%	15.4%	74.1%
		Residual	-1.3	2.9	.1	-1.7	
	Don't recall using	Count	3	2	1	3	9
		Expected Count	1.1	4.8	1.0	2.0	9.0
		% within Q11.5 Exclusive airport lounge: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	33.3%	22.2%	11.1%	33.3%	100.0%
		% within Cluster Number of Case	16.7%	2.6%	6.3%	9.4%	6.3%
		% of Total	2.1%	1.4%	.7%	2.1%	6.3%
		Residual	1.9	-2.8	.0	1.0	
Total		Count	18	77	16	32	143
		Expected Count	18.0	77.0	16.0	32.0	143.0
		% within Q11.5 Exclusive airport lounge: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	12.6%	53.8%	11.2%	22.4%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	12.6%	53.8%	11.2%	22.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.813[a]	6	.444
Likelihood Ratio	5.268	6	.510
Linear-by-Linear Association	.095	1	.758
N of Valid Cases	143		

a. 6 cells (50.0%) have expected count less than 5. The minimum expected count is 1.01.

U.6 On-board amenity kit

Crosstab

			Cluster Number of Case				
			1	2	3	4	Total
Q11.6 Onboard amenity kit: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	Haven't used	Count	6	19	2	10	37
		Expected Count	4.7	19.9	4.1	8.3	37.0
		% within Q11.6 Onboard amenity kit: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	16.2%	51.4%	5.4%	27.0%	100.0%
		% within Cluster Number of Case	33.3%	24.7%	12.5%	31.3%	25.9%
		% of Total	4.2%	13.3%	1.4%	7.0%	25.9%
		Residual	1.3	-.9	-2.1	1.7	
	Have used	Count	8	48	12	17	85
		Expected Count	10.7	45.8	9.5	19.0	85.0
		% within Q11.6 Onboard amenity kit: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	9.4%	56.5%	14.1%	20.0%	100.0%
		% within Cluster Number of Case	44.4%	62.3%	75.0%	53.1%	59.4%
		% of Total	5.6%	33.6%	8.4%	11.9%	59.4%
		Residual	-2.7	2.2	2.5	-2.0	
	Don't recall using	Count	4	10	2	5	21
		Expected Count	2.6	11.3	2.3	4.7	21.0
		% within Q11.6 Onboard amenity kit: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	19.0%	47.6%	9.5%	23.8%	100.0%
		% within Cluster Number of Case	22.2%	13.0%	12.5%	15.6%	14.7%
		% of Total	2.8%	7.0%	1.4%	3.5%	14.7%
		Residual	1.4	-1.3	-.3	.3	
Total		Count	18	77	16	32	143
		Expected Count	18.0	77.0	16.0	32.0	143.0
		% within Q11.6 Onboard amenity kit: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	12.6%	53.8%	11.2%	22.4%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	12.6%	53.8%	11.2%	22.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.468[a]	6	.614
Likelihood Ratio	4.612	6	.594
Linear-by-Linear Association	.021	1	.884
N of Valid Cases	143		

a. 5 cells (41.7%) have expected count less than 5. The minimum expected count is 2.35.

U.7 Priority deplaning

Crosstab

			Cluster Number of Case				Total
			1	2	3	4	
Q11.7 Priority deplaning: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	Haven't used	Count	5	27	7	14	53
		Expected Count	6.7	28.5	5.9	11.9	53.0
		% within Q11.7 Priority deplaning: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	9.4%	50.9%	13.2%	26.4%	100.0%
		% within Cluster Number of Case	27.8%	35.1%	43.8%	43.8%	37.1%
		% of Total	3.5%	18.9%	4.9%	9.8%	37.1%
		Residual	-1.7	-1.5	1.1	2.1	
	Have used	Count	8	36	6	13	63
		Expected Count	7.9	33.9	7.0	14.1	63.0
		% within Q11.7 Priority deplaning: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	12.7%	57.1%	9.5%	20.6%	100.0%
		% within Cluster Number of Case	44.4%	46.8%	37.5%	40.6%	44.1%
		% of Total	5.6%	25.2%	4.2%	9.1%	44.1%
		Residual	.1	2.1	-1.0	-1.1	
	Don't recall using	Count	5	14	3	5	27
		Expected Count	3.4	14.5	3.0	6.0	27.0
		% within Q11.7 Priority deplaning: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	18.5%	51.9%	11.1%	18.5%	100.0%
		% within Cluster Number of Case	27.8%	18.2%	18.8%	15.6%	18.9%
		% of Total	3.5%	9.8%	2.1%	3.5%	18.9%
		Residual	1.6	-.5	.0	-1.0	
Total		Count	18	77	16	32	143
		Expected Count	18.0	77.0	16.0	32.0	143.0
		% within Q11.7 Priority deplaning: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	12.6%	53.8%	11.2%	22.4%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	12.6%	53.8%	11.2%	22.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.404[a]	6	.879
Likelihood Ratio	2.337	6	.886
Linear-by-Linear Association	1.607	1	.205
N of Valid Cases	143		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 3.02.

U.8 Fast track immigration upon arrival

Crosstab

			Cluster Number of Case				
			1	2	3	4	Total
Q11.8 Fast track immigration upon arrival: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	Haven't used	Count	8	38	5	20	71
		Expected Count	8.9	38.2	7.9	15.9	71.0
		% within Q11.8 Fast track immigration upon arrival: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	11.3%	53.5%	7.0%	28.2%	100.0%
		% within Cluster Number of Case	44.4%	49.4%	31.3%	62.5%	49.7%
		% of Total	5.6%	26.6%	3.5%	14.0%	49.7%
		Residual	-.9	-.2	-2.9	4.1	
	Have used	Count	5	29	6	10	50
		Expected Count	6.3	26.9	5.6	11.2	50.0
		% within Q11.8 Fast track immigration upon arrival: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	10.0%	58.0%	12.0%	20.0%	100.0%
		% within Cluster Number of Case	27.8%	37.7%	37.5%	31.3%	35.0%
		% of Total	3.5%	20.3%	4.2%	7.0%	35.0%
		Residual	-1.3	2.1	.4	-1.2	
	Don't recall using	Count	5	10	5	2	22
		Expected Count	2.8	11.8	2.5	4.9	22.0
		% within Q11.8 Fast track immigration upon arrival: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	22.7%	45.5%	22.7%	9.1%	100.0%
		% within Cluster Number of Case	27.8%	13.0%	31.3%	6.3%	15.4%
		% of Total	3.5%	7.0%	3.5%	1.4%	15.4%
		Residual	2.2	-1.8	2.5	-2.9	
Total		Count	18	77	16	32	143
		Expected Count	18.0	77.0	16.0	32.0	143.0
		% within Q11.8 Fast track immigration upon arrival: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	12.6%	53.8%	11.2%	22.4%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	12.6%	53.8%	11.2%	22.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.275[a]	6	.159
Likelihood Ratio	8.950	6	.176
Linear-by-Linear Association	1.906	1	.167
N of Valid Cases	143		

a. 3 cells (25.0%) have expected count less than 5. The minimum expected count is 2.46.

U.9 Priority bag delivery

Crosstab

			Cluster Number of Case				Total
			1	2	3	4	
Q11.9 Priority bag delivery: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	Haven't used	Count	9	33	8	17	67
		Expected Count	8.4	36.1	7.5	15.0	67.0
		% within Q11.9 Priority bag delivery: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	13.4%	49.3%	11.9%	25.4%	100.0%
		% within Cluster Number of Case	50.0%	42.9%	50.0%	53.1%	46.9%
		% of Total	6.3%	23.1%	5.6%	11.9%	46.9%
		Residual	.6	-3.1	.5	2.0	
	Have used	Count	4	31	3	12	50
		Expected Count	6.3	26.9	5.6	11.2	50.0
		% within Q11.9 Priority bag delivery: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	8.0%	62.0%	6.0%	24.0%	100.0%
		% within Cluster Number of Case	22.2%	40.3%	18.8%	37.5%	35.0%
		% of Total	2.8%	21.7%	2.1%	8.4%	35.0%
		Residual	-2.3	4.1	-2.6	.8	
	Don't recall using	Count	5	13	5	3	26
		Expected Count	3.3	14.0	2.9	5.8	26.0
		% within Q11.9 Priority bag delivery: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	19.2%	50.0%	19.2%	11.5%	100.0%
		% within Cluster Number of Case	27.8%	16.9%	31.3%	9.4%	18.2%
		% of Total	3.5%	9.1%	3.5%	2.1%	18.2%
		Residual	1.7	-1.0	2.1	-2.8	
Total		Count	18	77	16	32	143
		Expected Count	18.0	77.0	16.0	32.0	143.0
		% within Q11.9 Priority bag delivery: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	12.6%	53.8%	11.2%	22.4%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	12.6%	53.8%	11.2%	22.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.169[a]	6	.305
Likelihood Ratio	7.408	6	.285
Linear-by-Linear Association	1.101	1	.294
N of Valid Cases	143		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 2.91.

U.10 Arrival lounge

Crosstab

			Cluster Number of Case				Total
			1	2	3	4	
Q11.10 Arrival lounge: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	Haven't used	Count	7	26	5	14	52
		Expected Count	6.5	28.0	5.8	11.6	52.0
		% within Q11.10 Arrival lounge: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	13.5%	50.0%	9.6%	26.9%	100.0%
		% within Cluster Number of Case	38.9%	33.8%	31.3%	43.8%	36.4%
		% of Total	4.9%	18.2%	3.5%	9.8%	36.4%
		Residual	.5	-2.0	-.8	2.4	
	Have used	Count	9	44	7	15	75
		Expected Count	9.4	40.4	8.4	16.8	75.0
		% within Q11.10 Arrival lounge: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	12.0%	58.7%	9.3%	20.0%	100.0%
		% within Cluster Number of Case	50.0%	57.1%	43.8%	46.9%	52.4%
		% of Total	6.3%	30.8%	4.9%	10.5%	52.4%
		Residual	-.4	3.6	-1.4	-1.8	
	Don't recall using	Count	2	7	4	3	16
		Expected Count	2.0	8.6	1.8	3.6	16.0
		% within Q11.10 Arrival lounge: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	12.5%	43.8%	25.0%	18.8%	100.0%
		% within Cluster Number of Case	11.1%	9.1%	25.0%	9.4%	11.2%
		% of Total	1.4%	4.9%	2.8%	2.1%	11.2%
		Residual	.0	-1.6	2.2	-.6	
Total		Count	18	77	16	32	143
		Expected Count	18.0	77.0	16.0	32.0	143.0
		% within Q11.10 Arrival lounge: Thinking about when you have flown Business or First Class, please indicate which, if any of these services you have used.	12.6%	53.8%	11.2%	22.4%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	12.6%	53.8%	11.2%	22.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.659[a]	6	.588
Likelihood Ratio	3.961	6	.682
Linear-by-Linear Association	.102	1	.749
N of Valid Cases	143		

a. 3 cells (25.0%) have expected count less than 5. The minimum expected count is 1.79.

Appendix V **Calculation of the potency indices for the four group multiple discriminant analysis (using four airline brands as a dependent variable, and airline product determinant attributes as independent variables)**

	Discriminant function 1					**Discriminant function 2**					**Discriminant function 3**				
	Loading	Squared Loading	Relative Eigenvalue	Potency Value		Loading	Square Loading	Relative Eigenvalue	Potency value		Loading	Square loading	Relative Eigenvalue	Potency value	Potency index
Availability of non-stop flights	-0.097	0.009	0.346	0.003		-0.061	0.004	0.083	0.000		0.232	0.054	0.009	0.000	0.004
Avance seat selection	0.059	0.003	0.346	0.001		-0.188	0.035	0.083	0.003		0.291	0.085	0.009	0.001	0.005
Up to date aircraft	0.240	0.058	0.346	0.020		0.823	0.677	0.083	0.056		0.055	0.003	0.009	0.000	0.076
Seat space	0.874	0.764	0.346	0.264		0.165	0.027	0.083	0.002		0.010	0.000	0.009	0.000	0.267
Physical appearance of employees	0.234	0.055	0.346	0.019		0.097	0.009	0.083	0.001		-0.645	0.416	0.009	0.004	0.023
Ticket purchase opportunity via Internet	0.069	0.005	0.346	0.002		0.086	0.007	0.083	0.001		0.384	0.147	0.009	0.001	0.004
Frequent flights to destinations	0.041	0.002	0.346	0.001		-0.081	0.007	0.083	0.001		0.146	0.021	0.009	0.000	0.001
Convenient flight schedules	0.036	0.001	0.346	0.000		-0.088	0.008	0.083	0.001		0.225	0.051	0.009	0.000	0.002
On-time baggage delivery upon arrival	0.096	0.009	0.346	0.003		0.025	0.001	0.083	0.000		0.237	0.056	0.009	0.001	0.004
Free tickets from Frequent Flyer programme	0.026	0.001	0.346	0.000		0.097	0.009	0.083	0.001		0.242	0.059	0.009	0.001	0.002
Internet check in	0.233	0.054	0.346	0.019		0.309	0.095	0.083	0.008		0.046	0.002	0.009	0.000	0.027
Personal on-board	0.450	0.203	0.346	0.070		0.265	0.070	0.083	0.006		0.041	0.002	0.009	0.000	0.076
Meal service	0.248	0.062	0.346	0.021		0.143	0.020	0.083	0.002		0.068	0.005	0.009	0.000	0.023
Complimentary newspapers	0.186	0.035	0.346	0.012		0.188	0.035	0.083	0.003		-0.296	0.088	0.009	0.001	0.016

	Discriminant function 1					Discriminant function 2					Discriminant function 3				
Close attention by cabin crew	0.179	0.032	0.346	0.011		0.124	0.015	0.083	0.001		-0.288	0.083	0.009	0.001	0.013
Cabin crew's ability to answer questions	0.258	0.067	0.346	0.023		0.111	0.012	0.083	0.001		-0.338	0.114	0.009	0.001	0.025
Employees who are willing to help passengers	0.277	0.077	0.346	0.027		0.111	0.012	0.083	0.001		-0.324	0.105	0.009	0.001	0.029
Courtesy of employees	0.141	0.020	0.346	0.007		0.050	0.003	0.083	0.000		-0.164	0.027	0.009	0.000	0.007
Employees who have the knowledge to answer questions when things goes wrong	0.173	0.030	0.346	0.010		0.032	0.001	0.083	0.000		-0.155	0.024	0.009	0.000	0.011
Sincere interest in solving problems	0.101	0.010	0.346	0.004		0.063	0.004	0.083	0.000		0.189	0.036	0.009	0.000	0.004
Adequacy of information on airlines' websites	0.030	0.001	0.346	0.000		0.099	0.010	0.083	0.001		0.288	0.083	0.009	0.001	0.002
Availability of airline website on the internet	-0.058	0.003	0.346	0.001		0.041	0.002	0.083	0.000		0.219	0.048	0.009	0.000	0.002
Price	0.088	0.008	0.346	0.003		0.017	0.000	0.083	0.000		0.131	0.017	0.009	0.000	0.003
Value for money	0.108	0.012	0.346	0.004		0.090	0.008	0.083	0.001		0.136	0.018	0.009	0.000	0.005

V.1 Calculation of the potency indices for the four group multiple discriminant analysis (using 4 clusters of airline brand perceptions as dependent variable, and airline product determinant attributes as independent variables)

	Discriminant function 1					**Discriminant function 2**					**Discriminant function 3**					
Airline product determinant attributes	Loading	Squared loading	Relative Eigenvalue	Potency Value		Loading	Square loading	Relative Eigenvalue	Potency value		Loading	Square loading	Relative Eigenvalue	Potency value		Potency Index
Convenient flight schedules	0.388	0.151	0.214	0.032		0.129	0.017	0.081	0.001		0.466	0.217	0.072	0.015635232		0.049
Up to date aircraft	0.706	0.498	0.214	0.107		0.203	0.041	0.081	0.003		-0.399	0.159	0.072	0.011462472		0.121
Personal on-board entertainment	0.659	0.434	0.214	0.093		-0.227	0.052	0.081	0.004		-0.398	0.158	0.072	0.011405088		0.109
Seat space	0.569	0.324	0.214	0.069		0.106	0.011	0.081	0.001		-0.676	0.457	0.072	0.032902272		0.103
Sincere interest in solving problems	0.771	0.594	0.214	0.127		-0.226	0.051	0.081	0.004		0.229	0.052	0.072	0.003775752		0.135
Price	0.469	0.220	0.214	0.047		0.630	0.397	0.081	0.032		0.074	0.005	0.072	0.000394272		0.080
Value for money	0.787	0.619	0.214	0.133		0.150	0.023	0.081	0.002		0.200	0.040	0.072	0.00288		0.137
Frequent flights to destinations	0.367	0.135	0.214	0.029		0.094	0.009	0.081	0.001		0.323	0.104	0.072	0.007511688		0.037
Availability of non-stop flights	0.403	0.162	0.214	0.035		0.114	0.013	0.081	0.001		0.225	0.051	0.072	0.003645		0.039
On-time baggage delivery upon	0.506	0.256	0.214	0.055		0.001	0.000	0.081	0.000		0.026	0.001	0.072	0.000048672		0.055

	Discriminant function 1					Discriminant function 2					Discriminant function 3					
arrival																
Advance seat selection	0.395	0.156	0.214	0.033		0.056	0.003	0.081	0.000		0.093	0.009	0.072	0.000622728		0.034
Free tickets from Frequent Flyer programme	0.531	0.282	0.214	0.060		0.049	0.002	0.081	0.000		0.131	0.017	0.072	0.001235592		0.062
Internet check in	0.608	0.370	0.214	0.079		0.077	0.006	0.081	0.000		-0.203	0.041	0.072	0.002967048		0.083
Meal service	0.493	0.243	0.214	0.052		-0.031	0.001	0.081	0.000		-0.118	0.014	0.072	0.001002528		0.053
Complimentary newspapers	0.401	0.161	0.214	0.034		0.044	0.002	0.081	0.000		-0.229	0.052	0.072	0.003775752		0.038
Physical appearance of employees	0.471	0.222	0.214	0.047		0.080	0.006	0.081	0.001		-0.301	0.091	0.072	0.006523272		0.055
Close attention by cabin crew	0.530	0.281	0.214	0.060		0.023	0.001	0.081	0.000		-0.090	0.008	0.072	0.0005832		0.061
Cabin crew's ability to answer questions	0.495	0.245	0.214	0.052		0.043	0.002	0.081	0.000		-0.200	0.040	0.072	0.00288		0.055
Employees who are willing to help passengers	0.478	0.228	0.214	0.049		0.058	0.003	0.081	0.000		-0.228	0.052	0.072	0.003742848		0.053
Courtesy of employees	0.514	0.264	0.214	0.057		-0.011	0.000	0.081	0.000		-0.033	0.001	0.072	0.000078408		0.057
Employees who have the knowledge to answer questions when things goes wrong	0.515	0.265	0.214	0.057		0.013	0.000	0.081	0.000		-0.104	0.011	0.072	0.000778752		0.058

	Discriminant function 1					Discriminant function 2					Discriminant function 3					
Adequacy of information on airlines' websites	0.628	0.394	0.214	0.084		-0.052	0.003	0.081	0.000		0.210	0.044	0.072	0.0031752		0.088
Ticket purchase opportunity via Internet	0.590	0.348	0.214	0.074		0.003	0.000	0.081	0.000		0.196	0.038	0.072	0.002765952		0.077
Availability of airline website on the internet	0.367	0.135	0.214	0.029		0.282	0.080	0.081	0.006		0.273	0.075	0.072	0.005366088		0.041

V.2 Calculation of the potency indices for the validation of the principal components of airline brand equity and clusters of airline brand perceptions

	Discriminant function 1					Discriminant function 2					Discriminant function 3					
	Loading	Squared loading	Relative Eigenvalue	Potency value		Loading	Squared loading	Relative Eigenvalue	Potency value		Loading	Squared Loading	Relative Eigenvalue	Potency value		Potency Index
(airline) consistently satisfies me:	0.657	0.432	1.034	0.679		-0.476	0.227	0.838	0.190		0.050	0.003	0.525	0.001		0.871
I am strongly committed to fly with (airline)	0.537	0.288	1.034	0.555		0.162	0.026	0.838	0.022		-0.154	0.024	0.525	0.012		0.590
I talk about(airline) with my friends:	0.477	0.228	1.034	0.493		0.251	0.063	0.838	0.053		-0.201	0.040	0.525	0.021		0.567
I see a lot of advertisements about (airline)	0.000	0.000	1.034	0.000		0.931	0.867	0.838	0.726		-0.004	0.000	0.525	0.000		0.726
I hold (airline) in high regard:	-0.189	0.036	1.034	-0.195		-0.070	0.005	0.838	0.004		0.493	0.243	0.525	0.128		-0.064
(airline) cares about its customers:	-0.181	0.033	1.034	-0.187		0.082	0.007	0.838	0.006		0.455	0.207	0.525	0.109		-0.073
When I think of flying with (airline) I have positive thoughts	-0.232	0.054	1.034	-0.240		-0.027	0.001	0.838	0.001		0.421	0.177	0.525	0.093		-0.146

Appendix W **Calculations of the dissimilarity values for identifying potential outliers**

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
	1	2	3		1	2	3		1	2	3			
1	-5.772	-0.754	-0.532		-5.772	-0.754	-0.532		33.317	0.569	0.283		34.170	5.845
2	-4.995	-2.322	0.782		-4.995	-2.322	0.782		24.954	5.389	0.612		30.956	5.564
3	3.297	-3.096	-0.427		3.297	-3.096	-0.427		10.873	9.588	0.182		20.642	4.543
4	-3.267	-1.266	-0.413		-3.267	-1.266	-0.413		10.671	1.603	0.171		12.445	3.528
5	-3.466	0.168	0.274		-3.466	0.168	0.274		12.011	0.028	0.075		12.114	3.480
6	1.090	-2.849	1.630		1.090	-2.849	1.630		1.188	8.116	2.658		11.962	3.459
7	-0.488	0.242	-3.420		-0.488	0.242	-3.420		0.238	0.058	11.696		11.992	3.463
8	-2.634	-1.764	0.638		-2.634	-1.764	0.638		6.939	3.113	0.407		10.459	3.234
9	2.734	-0.787	-1.532		2.734	-0.787	-1.532		7.476	0.619	2.346		10.441	3.231
10	1.059	-1.053	-2.778		1.059	-1.053	-2.778		1.121	1.108	7.718		9.948	3.154
11	-2.864	0.555	-1.112		-2.864	0.555	-1.112		8.203	0.308	1.236		9.748	3.122
12	0.836	-0.671	-2.962		0.836	-0.671	-2.962		0.699	0.450	8.774		9.923	3.150
13	2.842	-0.471	-1.033		2.842	-0.471	-1.033		8.078	0.222	1.067		9.368	3.061
14	1.869	-1.614	-1.751		1.869	-1.614	-1.751		3.493	2.604	3.066		9.163	3.027
15	1.500	1.736	1.723		1.500	1.736	1.723		2.249	3.015	2.969		8.233	2.869
16	0.804	2.407	-1.335		0.804	2.407	-1.335		0.646	5.794	1.781		8.221	2.867
17	1.500	1.736	1.723		1.500	1.736	1.723		2.249	3.015	2.969		8.233	2.869
18	1.324	-2.097	-1.414		1.324	-2.097	-1.414		1.754	4.396	2.000		8.151	2.855
19	-2.634	1.020	0.047		-2.634	1.020	0.047		6.939	1.040	0.002		7.981	2.825
20	-0.052	2.154	1.790		-0.052	2.154	1.790		0.003	4.638	3.205		7.846	2.801
21	1.299	1.728	1.769		1.299	1.728	1.769		1.687	2.987	3.128		7.802	2.793
22	1.533	-2.252	-0.438		1.533	-2.252	-0.438		2.351	5.072	0.192		7.615	2.760

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
23	-1.763	0.850	1.962		-1.763	0.850	1.962		3.110	0.723	3.849		7.681	2.771
24	1.702	1.377	1.547		1.702	1.377	1.547		2.898	1.896	2.392		7.186	2.681
25	1.040	1.359	-2.076		1.040	1.359	-2.076		1.081	1.846	4.311		7.238	2.690
26	-2.103	-0.393	-1.542		-2.103	-0.393	-1.542		4.423	0.155	2.378		6.956	2.637
27	-0.189	-0.949	2.405		-0.189	-0.949	2.405		0.036	0.901	5.784		6.721	2.592
28	-0.762	-1.310	-2.072		-0.762	-1.310	-2.072		0.580	1.717	4.292		6.590	2.567
29	2.056	0.682	1.363		2.056	0.682	1.363		4.225	0.465	1.858		6.548	2.559
30	1.005	1.766	1.555		1.005	1.766	1.555		1.009	3.120	2.418		6.547	2.559
31	1.557	1.757	1.058		1.557	1.757	1.058		2.423	3.089	1.120		6.632	2.575
32	0.955	-2.332	0.212		0.955	-2.332	0.212		0.913	5.440	0.045		6.398	2.529
33	1.670	1.800	-0.271		1.670	1.800	-0.271		2.790	3.239	0.074		6.103	2.470
34	0.639	-2.317	-0.609		0.639	-2.317	-0.609		0.409	5.370	0.371		6.150	2.480
35	0.399	-0.081	-2.414		0.399	-0.081	-2.414		0.159	0.007	5.829		5.995	2.449
36	-2.248	0.739	-0.557		-2.248	0.739	-0.557		5.054	0.546	0.311		5.911	2.431
37	-1.976	-1.151	-0.835		-1.976	-1.151	-0.835		3.904	1.324	0.697		5.925	2.434
38	-2.178	-0.439	1.018		-2.178	-0.439	1.018		4.742	0.193	1.037		5.972	2.444
39	0.464	-2.015	1.283		0.464	-2.015	1.283		0.215	4.060	1.645		5.920	2.433
40	1.699	1.438	1.005		1.699	1.438	1.005		2.888	2.069	1.010		5.966	2.443
41	-0.685	0.648	2.210		-0.685	0.648	2.210		0.469	0.420	4.886		5.774	2.403
42	1.317	1.808	-0.844		1.317	1.808	-0.844		1.734	3.269	0.712		5.716	2.391
43	1.437	1.898	-0.020		1.436	1.898	-0.020		2.064	3.603	0.000		5.667	2.381
44	1.362	0.110	1.953		1.362	0.110	1.953		1.855	0.012	3.813		5.680	2.383
45	-1.158	0.793	-1.865		-1.158	0.793	-1.865		1.340	0.628	3.479		5.447	2.334
46	0.709	-2.239	-0.090		0.709	-2.239	-0.090		0.503	5.015	0.008		5.526	2.351
47	1.266	0.932	1.723		1.266	0.932	1.723		1.604	0.869	2.970		5.443	2.333

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
48	-0.498	-0.883	2.094		-0.498	-0.883	2.094		0.248	0.779	4.385		5.412	2.326
49	1.716	0.355	1.571		1.716	0.355	1.571		2.945	0.126	2.468		5.539	2.353
50	-0.715	-0.255	2.218		-0.715	-0.255	2.218		0.511	0.065	4.921		5.497	2.345
51	0.703	0.129	-2.198		0.703	0.129	-2.198		0.494	0.017	4.833		5.344	2.312
52	2.075	0.835	0.601		2.075	0.835	0.601		4.306	0.697	0.361		5.364	2.316
53	-0.278	0.163	-2.294		-0.278	0.163	-2.294		0.077	0.026	5.264		5.368	2.317
54	-1.230	1.518	1.251		-1.230	1.518	1.251		1.513	2.303	1.566		5.382	2.320
55	0.038	0.603	-2.202		0.038	0.603	-2.202		0.001	0.364	4.848		5.213	2.283
56	-0.054	-2.242	0.249		-0.054	-2.242	0.249		0.003	5.025	0.062		5.090	2.256
57	-0.444	2.132	0.565		-0.444	2.132	0.565		0.197	4.547	0.319		5.064	2.250
58	1.522	1.558	0.592		1.522	1.558	0.592		2.317	2.427	0.350		5.094	2.257
59	0.574	1.370	-1.692		0.574	1.370	-1.692		0.329	1.876	2.861		5.067	2.251
60	1.899	1.140	0.287		1.899	1.140	0.287		3.605	1.300	0.082		4.988	2.233
61	-1.850	-1.195	-0.302		-1.850	-1.195	-0.302		3.421	1.427	0.091		4.939	2.222
62	1.970	0.918	-0.452		1.969	0.918	-0.452		3.879	0.843	0.204		4.926	2.219
63	0.972	-1.867	-0.657		0.972	-1.866	-0.657		0.944	3.484	0.432		4.860	2.204
64	1.930	-0.409	0.903		1.930	-0.409	0.903		3.724	0.167	0.816		4.707	2.170
65	-1.896	0.936	0.280		-1.896	0.936	0.280		3.595	0.876	0.079		4.549	2.133
66	0.991	-1.767	0.701		0.991	-1.767	0.701		0.983	3.121	0.492		4.595	2.144
67	0.811	-0.877	-1.766		0.811	-0.877	-1.766		0.658	0.770	3.118		4.546	2.132
68	-0.293	1.848	-1.014		-0.293	1.848	-1.014		0.086	3.415	1.028		4.529	2.128
69	0.662	-1.911	0.597		0.662	-1.911	0.597		0.438	3.651	0.357		4.446	2.108
70	-1.807	-0.221	-1.073		-1.807	-0.221	-1.073		3.264	0.049	1.151		4.464	2.113
71	-0.862	1.555	-1.118		-0.862	1.555	-1.118		0.742	2.419	1.251		4.412	2.101
72	0.117	1.662	1.227		0.117	1.662	1.227		0.014	2.761	1.505		4.280	2.069

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
73	-0.363	1.424	-1.468		-0.363	1.424	-1.468		0.132	2.028	2.156		4.316	2.077
74	1.588	1.332	0.227		1.588	1.332	0.227		2.521	1.774	0.051		4.346	2.085
75	-1.561	0.593	1.169		-1.561	0.593	1.169		2.438	0.351	1.367		4.156	2.039
76	1.442	-1.447	-0.242		1.442	-1.447	-0.242		2.080	2.095	0.059		4.234	2.058
77	1.849	0.836	-0.047		1.849	0.836	-0.047		3.417	0.699	0.002		4.119	2.029
78	0.927	1.125	1.373		0.927	1.125	1.373		0.859	1.265	1.886		4.011	2.003
79	0.668	-1.816	-0.610		0.668	-1.816	-0.610		0.446	3.299	0.372		4.116	2.029
80	-0.739	-0.192	-1.865		-0.739	-0.192	-1.865		0.546	0.037	3.479		4.061	2.015
81	-1.097	0.588	1.565		-1.097	0.588	1.565		1.203	0.346	2.450		3.998	2.000
82	1.334	-0.777	1.268		1.334	-0.777	1.268		1.779	0.604	1.607		3.990	1.997
83	0.253	-0.593	-1.823		0.253	-0.593	-1.823		0.064	0.351	3.325		3.740	1.934
84	0.978	1.466	0.784		0.978	1.466	0.784		0.957	2.148	0.615		3.720	1.929
85	-0.800	0.307	1.737		-0.800	0.307	1.737		0.639	0.094	3.016		3.750	1.936
86	-1.757	0.684	0.288		-1.757	0.684	0.288		3.087	0.468	0.083		3.638	1.907
87	-1.400	-1.276	0.216		-1.400	-1.276	0.216		1.960	1.628	0.046		3.635	1.906
88	0.445	1.679	0.803		0.445	1.679	0.803		0.198	2.818	0.644		3.661	1.913
89	1.037	0.077	-1.607		1.037	0.077	-1.607		1.075	0.006	2.584		3.665	1.914
90	-1.208	1.332	0.524		-1.208	1.332	0.524		1.460	1.774	0.275		3.509	1.873
91	-1.398	-1.112	0.428		-1.398	-1.112	0.428		1.955	1.236	0.183		3.375	1.837
92	-1.278	-0.653	-1.153		-1.278	-0.653	-1.153		1.632	0.427	1.329		3.388	1.841
93	1.379	0.287	1.142		1.379	0.287	1.142		1.901	0.083	1.304		3.288	1.813
94	-1.815	-0.043	0.269		-1.815	-0.043	0.269		3.294	0.002	0.072		3.369	1.835
95	-1.657	-0.650	-0.424		-1.657	-0.650	-0.424		2.745	0.422	0.180		3.347	1.829
96	-1.066	0.798	-1.193		-1.066	0.798	-1.193		1.137	0.637	1.424		3.198	1.788
97	0.267	-1.311	1.188		0.267	-1.311	1.188		0.071	1.718	1.412		3.201	1.789

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
98	-0.297	-1.143	1.362		-0.297	-1.143	1.362		0.088	1.307	1.855		3.249	1.803
99	-1.774	-0.201	-0.244		-1.774	-0.201	-0.244		3.148	0.040	0.059		3.247	1.802
100	0.756	-1.531	0.490		0.756	-1.531	0.490		0.571	2.345	0.240		3.157	1.777
101	1.587	0.582	-0.566		1.587	0.582	-0.566		2.517	0.339	0.320		3.176	1.782
102	-1.702	-0.139	0.302		-1.702	-0.139	0.302		2.897	0.019	0.091		3.008	1.734
103	-0.148	1.538	0.784		-0.148	1.538	0.784		0.022	2.365	0.614		3.001	1.732
104	1.283	-0.260	-1.141		1.283	-0.260	-1.141		1.646	0.067	1.302		3.016	1.737
105	-1.347	1.100	-0.171		-1.347	1.100	-0.171		1.815	1.211	0.029		3.055	1.748
106	-1.430	-0.592	0.794		-1.430	-0.592	0.794		2.044	0.350	0.630		3.024	1.739
107	-1.537	-0.773	-0.081		-1.537	-0.773	-0.081		2.364	0.597	0.007		2.967	1.723
108	0.720	1.231	-0.938		0.720	1.231	-0.938		0.518	1.516	0.880		2.913	1.707
109	0.190	1.453	0.832		0.190	1.453	0.832		0.036	2.112	0.692		2.840	1.685
110	0.307	1.278	-1.060		0.307	1.278	-1.060		0.094	1.632	1.123		2.849	1.688
111	-0.549	-0.383	1.539		-0.549	-0.383	1.539		0.301	0.147	2.367		2.815	1.678
112	0.408	-1.130	1.172		0.408	-1.130	1.172		0.167	1.277	1.373		2.817	1.678
113	-0.886	0.420	1.347		-0.886	0.420	1.347		0.785	0.176	1.815		2.776	1.666
114	0.853	-0.806	-1.191		0.853	-0.806	-1.191		0.728	0.650	1.419		2.797	1.672
115	-0.539	-0.126	-1.567		-0.539	-0.126	-1.567		0.291	0.016	2.457		2.763	1.662
116	-0.200	1.468	-0.770		-0.200	1.468	-0.770		0.040	2.155	0.592		2.787	1.669
117	-1.497	0.649	-0.370		-1.497	0.649	-0.370		2.242	0.421	0.137		2.800	1.673
118	-1.488	0.614	-0.270		-1.488	0.614	-0.270		2.214	0.377	0.073		2.664	1.632
119	-1.450	0.699	-0.335		-1.450	0.699	-0.335		2.102	0.488	0.112		2.702	1.644
120	0.595	-0.132	-1.510		0.595	-0.132	-1.510		0.354	0.018	2.280		2.651	1.628
121	0.112	-1.600	0.034		0.112	-1.600	0.034		0.013	2.562	0.001		2.575	1.605
122	-0.238	1.537	0.447		-0.238	1.537	0.447		0.057	2.362	0.199		2.618	1.618

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
123	-1.448	0.453	0.501		-1.448	0.453	0.501		2.097	0.205	0.251		2.554	1.598
124	0.484	-1.000	-1.138		0.484	-1.000	-1.138		0.234	0.999	1.296		2.530	1.590
125	-0.969	-0.330	-1.218		-0.969	-0.330	-1.218		0.939	0.109	1.483		2.531	1.591
126	1.107	0.901	0.667		1.107	0.901	0.667		1.225	0.812	0.445		2.482	1.576
127	-0.509	0.700	-1.313		-0.509	0.700	-1.313		0.260	0.490	1.724		2.473	1.573
128	-1.002	1.065	0.538		-1.002	1.065	0.538		1.003	1.133	0.290		2.427	1.558
129	-0.564	1.271	0.712		-0.564	1.271	0.712		0.318	1.615	0.507		2.440	1.562
130	0.388	-1.465	-0.364		0.388	-1.465	-0.364		0.151	2.146	0.132		2.429	1.559
131	1.211	0.935	0.331		1.211	0.935	0.331		1.466	0.874	0.110		2.450	1.565
132	0.830	0.974	-0.847		0.830	0.974	-0.847		0.688	0.948	0.718		2.354	1.534
133	-1.158	-1.021	-0.097		-1.158	-1.021	-0.097		1.342	1.042	0.010		2.393	1.547
134	0.935	-0.595	-1.071		0.935	-0.595	-1.071		0.875	0.354	1.147		2.376	1.542
135	-1.353	-0.580	-0.406		-1.353	-0.580	-0.406		1.831	0.337	0.165		2.333	1.527
136	-1.031	0.923	-0.689		-1.031	0.923	-0.689		1.063	0.852	0.475		2.390	1.546
137	0.022	-0.431	-1.488		0.022	-0.431	-1.488		0.000	0.186	2.214		2.401	1.549
138	-0.497	0.270	-1.401		-0.497	0.270	-1.401		0.247	0.073	1.962		2.282	1.511
139	-0.185	1.129	0.997		-0.185	1.129	0.997		0.034	1.274	0.994		2.303	1.517
140	1.304	0.527	0.456		1.304	0.527	0.456		1.702	0.278	0.208		2.187	1.479
141	0.552	-1.309	0.440		0.552	-1.309	0.439		0.305	1.714	0.193		2.212	1.487
142	0.891	1.072	0.488		0.891	1.072	0.488		0.794	1.150	0.238		2.182	1.477
143	-0.551	0.951	0.953		-0.551	0.951	0.953		0.304	0.903	0.909		2.116	1.455
144	-0.811	0.793	0.906		-0.811	0.793	0.906		0.658	0.629	0.821		2.107	1.452
145	-0.515	1.304	0.282		-0.515	1.304	0.282		0.265	1.701	0.080		2.046	1.430
146	0.312	-0.193	-1.404		0.312	-0.193	-1.404		0.097	0.037	1.971		2.105	1.451
147	1.030	0.579	0.786		1.030	0.579	0.786		1.061	0.335	0.618		2.013	1.419

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
148	-0.234	-0.203	-1.375		-0.234	-0.203	-1.375		0.055	0.041	1.890		1.986	1.409
149	-0.562	-0.290	1.275		-0.562	-0.290	1.275		0.316	0.084	1.626		2.025	1.423
150	-0.421	1.324	-0.236		-0.421	1.324	-0.236		0.177	1.754	0.056		1.987	1.410
151	-0.133	-0.665	-1.253		-0.133	-0.665	-1.253		0.018	0.442	1.571		2.030	1.425
152	-0.548	1.297	0.006		-0.548	1.297	0.006		0.300	1.681	0.000		1.982	1.408
153	-0.700	-0.638	1.005		-0.700	-0.638	1.005		0.490	0.408	1.011		1.908	1.381
154	-0.525	-0.112	1.255		-0.525	-0.112	1.255		0.275	0.013	1.574		1.862	1.364
155	-0.680	1.120	0.429		-0.680	1.120	0.429		0.463	1.254	0.184		1.901	1.379
156	-0.709	-0.998	0.544		-0.709	-0.998	0.544		0.503	0.996	0.296		1.795	1.340
157	-1.205	0.502	0.362		-1.205	0.502	0.362		1.451	0.252	0.131		1.834	1.354
158	0.747	0.554	-0.956		0.747	0.554	-0.956		0.558	0.307	0.915		1.780	1.334
159	0.351	0.762	1.058		0.351	0.762	1.058		0.124	0.580	1.120		1.823	1.350
160	0.183	0.634	-1.160		0.183	0.634	-1.160		0.034	0.402	1.346		1.782	1.335
161	0.697	0.233	-1.065		0.697	0.233	-1.065		0.486	0.054	1.135		1.676	1.295
162	-0.603	0.576	0.982		-0.603	0.576	0.982		0.364	0.332	0.964		1.660	1.288
163	-0.928	0.837	-0.280		-0.928	0.837	-0.280		0.861	0.700	0.078		1.640	1.281
164	-1.159	0.074	-0.545		-1.159	0.074	-0.545		1.343	0.005	0.297		1.646	1.283
165	-0.611	0.487	0.999		-0.611	0.487	0.999		0.373	0.238	0.998		1.609	1.268
166	0.893	0.661	-0.616		0.893	0.661	-0.616		0.798	0.438	0.379		1.615	1.271
167	-1.276	-0.096	-0.052		-1.276	-0.096	-0.052		1.627	0.009	0.003		1.639	1.280
168	-0.994	0.586	0.483		-0.994	0.586	0.483		0.988	0.344	0.233		1.566	1.251
169	-0.184	0.792	0.949		-0.184	0.792	0.949		0.034	0.628	0.901		1.562	1.250
170	-0.184	0.792	0.949		-0.184	0.792	0.949		0.034	0.628	0.901		1.562	1.250
171	-0.437	-0.089	1.176		-0.437	-0.089	1.176		0.191	0.008	1.382		1.581	1.257
172	1.079	-0.001	-0.657		1.079	-0.001	-0.657		1.164	0.000	0.432		1.596	1.263

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
173	-0.184	0.792	0.949		-0.184	0.792	0.949		0.034	0.628	0.901		1.562	1.250
174	-0.247	0.954	-0.794		-0.247	0.954	-0.794		0.061	0.910	0.630		1.601	1.265
175	0.840	0.287	-0.841		0.840	0.287	-0.841		0.706	0.083	0.708		1.496	1.223
176	-0.378	-0.247	1.136		-0.378	-0.247	1.136		0.143	0.061	1.291		1.495	1.223
177	-0.424	0.303	1.120		-0.424	0.303	1.120		0.180	0.092	1.254		1.526	1.235
178	-0.440	-0.979	0.595		-0.440	-0.979	0.595		0.193	0.959	0.354		1.506	1.227
179	-0.468	-0.424	-1.020		-0.468	-0.424	-1.020		0.219	0.179	1.040		1.439	1.200
180	-0.958	0.612	-0.407		-0.958	0.612	-0.407		0.919	0.375	0.166		1.459	1.208
181	-0.166	-0.258	1.170		-0.166	-0.258	1.170		0.027	0.066	1.369		1.463	1.209
182	-0.474	1.121	-0.089		-0.474	1.121	-0.089		0.225	1.257	0.008		1.490	1.221
183	0.933	0.104	-0.727		0.933	0.104	-0.727		0.870	0.011	0.528		1.409	1.187
184	-0.484	-0.386	1.016		-0.484	-0.386	1.016		0.234	0.149	1.031		1.415	1.189
185	-0.075	1.143	0.325		-0.075	1.143	0.325		0.006	1.307	0.106		1.418	1.191
186	0.746	-0.726	0.528		0.745	-0.726	0.528		0.556	0.528	0.278		1.362	1.167
187	-0.413	-1.037	-0.329		-0.413	-1.037	-0.329		0.170	1.076	0.108		1.354	1.164
188	-0.527	1.031	-0.112		-0.527	1.031	-0.112		0.277	1.062	0.013		1.352	1.163
189	-0.960	-0.289	0.547		-0.960	-0.289	0.547		0.922	0.083	0.299		1.305	1.142
190	-0.584	-0.138	-0.979		-0.584	-0.138	-0.979		0.341	0.019	0.959		1.319	1.149
191	0.977	-0.583	-0.020		0.977	-0.583	-0.020		0.955	0.339	0.000		1.295	1.138
192	0.087	0.501	-1.020		0.087	0.501	-1.020		0.008	0.251	1.040		1.299	1.140
193	0.351	1.095	0.065		0.351	1.095	0.065		0.123	1.198	0.004		1.326	1.151
194	-0.446	1.021	0.178		-0.446	1.021	0.178		0.199	1.043	0.032		1.274	1.129
195	-0.446	1.021	0.178		-0.446	1.021	0.178		0.199	1.043	0.032		1.274	1.129
196	-0.147	0.826	0.754		-0.147	0.826	0.754		0.022	0.682	0.568		1.272	1.128
197	0.872	-0.528	0.469		0.872	-0.528	0.469		0.760	0.279	0.220		1.259	1.122

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
198	-0.563	0.755	0.600		-0.563	0.755	0.600		0.317	0.571	0.360		1.247	1.117
199	-0.339	0.011	-1.042		-0.339	0.011	-1.042		0.115	0.000	1.087		1.201	1.096
200	0.048	-0.983	-0.483		0.048	-0.983	-0.483		0.002	0.966	0.234		1.202	1.096
201	0.790	0.724	-0.261		0.790	0.724	-0.261		0.624	0.524	0.068		1.216	1.103
202	-0.647	-0.094	-0.892		-0.647	-0.094	-0.892		0.418	0.009	0.796		1.223	1.106
203	-0.620	-0.866	-0.211		-0.620	-0.866	-0.211		0.384	0.750	0.045		1.179	1.086
204	0.644	-0.484	0.710		0.644	-0.484	0.710		0.415	0.234	0.504		1.154	1.074
205	0.188	0.579	0.862		0.188	0.579	0.862		0.035	0.335	0.743		1.114	1.056
206	-0.477	-0.148	-0.944		-0.477	-0.148	-0.944		0.227	0.022	0.891		1.140	1.068
207	-0.481	0.809	0.433		-0.481	0.809	0.433		0.232	0.654	0.188		1.074	1.036
208	-0.248	0.731	0.689		-0.248	0.731	0.689		0.062	0.535	0.475		1.072	1.035
209	0.222	-0.563	0.813		0.222	-0.563	0.813		0.049	0.317	0.661		1.027	1.014
210	-0.041	0.473	0.896		-0.041	0.473	0.896		0.002	0.224	0.802		1.028	1.014
211	-0.849	0.366	0.410		-0.849	0.366	0.410		0.721	0.134	0.168		1.023	1.011
212	-0.525	0.558	0.658		-0.525	0.558	0.658		0.276	0.312	0.433		1.021	1.011
213	-0.041	0.473	0.896		-0.041	0.473	0.896		0.002	0.224	0.802		1.028	1.014
214	-0.616	-0.437	-0.669		-0.616	-0.437	-0.669		0.379	0.191	0.448		1.018	1.009
215	0.555	0.724	-0.408		0.555	0.724	-0.408		0.308	0.525	0.166		0.999	0.999
216	0.003	0.898	-0.458		0.003	0.898	-0.458		0.000	0.807	0.209		1.016	1.008
217	-0.304	0.933	-0.129		-0.304	0.933	-0.129		0.093	0.870	0.017		0.980	0.990
218	0.011	0.699	-0.693		0.011	0.699	-0.693		0.000	0.489	0.481		0.969	0.985
219	-0.016	0.471	0.852		-0.016	0.471	0.852		0.000	0.222	0.726		0.948	0.974
220	0.392	0.629	0.628		0.392	0.629	0.628		0.154	0.396	0.395		0.945	0.972
221	0.215	-0.527	0.780		0.215	-0.527	0.780		0.046	0.278	0.609		0.933	0.966
222	0.423	-0.137	0.842		0.423	-0.137	0.842		0.179	0.019	0.709		0.908	0.953

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
223	0.489	-0.409	-0.709		0.489	-0.409	-0.709		0.239	0.167	0.503		0.909	0.953
224	-0.592	0.574	0.495		-0.592	0.574	0.495		0.350	0.330	0.245		0.925	0.962
225	0.262	0.830	-0.388		0.262	0.830	-0.388		0.069	0.689	0.151		0.909	0.953
226	0.060	0.830	0.418		0.060	0.830	0.418		0.004	0.689	0.175		0.867	0.931
227	-0.266	-0.087	0.893		-0.266	-0.087	0.893		0.071	0.008	0.798		0.876	0.936
228	-0.810	0.147	-0.472		-0.810	0.147	-0.472		0.657	0.022	0.222		0.901	0.949
229	0.092	0.918	0.005		0.092	0.918	0.005		0.008	0.842	0.000		0.851	0.922
230	-0.775	-0.454	0.191		-0.775	-0.454	0.191		0.601	0.206	0.037		0.843	0.918
231	0.815	0.226	0.351		0.815	0.226	0.351		0.664	0.051	0.123		0.838	0.915
232	-0.070	0.835	-0.381		-0.070	0.835	-0.381		0.005	0.697	0.145		0.846	0.920
233	-0.158	-0.798	-0.381		-0.158	-0.798	-0.381		0.025	0.636	0.145		0.807	0.898
234	0.097	-0.341	-0.829		0.097	-0.341	-0.829		0.009	0.116	0.687		0.812	0.901
235	-0.495	0.329	-0.650		-0.495	0.329	-0.650		0.245	0.108	0.423		0.776	0.881
236	0.683	0.359	0.443		0.683	0.359	0.442		0.466	0.129	0.196		0.791	0.889
237	0.244	0.353	-0.766		0.244	0.353	-0.766		0.059	0.125	0.587		0.771	0.878
238	0.018	0.433	0.773		0.018	0.433	0.772		0.000	0.187	0.597		0.785	0.886
239	0.556	0.567	0.340		0.556	0.567	0.340		0.309	0.321	0.115		0.746	0.864
240	0.194	-0.633	-0.564		0.194	-0.633	-0.564		0.038	0.400	0.318		0.756	0.869
241	-0.127	0.813	0.284		-0.127	0.813	0.284		0.016	0.662	0.081		0.759	0.871
242	0.394	-0.559	0.500		0.394	-0.559	0.500		0.155	0.312	0.250		0.717	0.847
243	-0.550	-0.397	0.501		-0.550	-0.397	0.501		0.303	0.157	0.251		0.712	0.844
244	0.123	-0.823	0.087		0.123	-0.823	0.087		0.015	0.678	0.008		0.701	0.837
245	-0.219	0.593	0.482		-0.219	0.593	0.482		0.048	0.351	0.233		0.632	0.795
246	-0.575	0.028	-0.550		-0.575	0.028	-0.550		0.331	0.001	0.302		0.634	0.796
247	-0.583	0.465	0.231		-0.583	0.465	0.231		0.340	0.216	0.053		0.609	0.780

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
248	0.225	-0.436	-0.569		0.225	-0.436	-0.569		0.051	0.190	0.324		0.565	0.752
249	0.121	-0.315	-0.670		0.121	-0.315	-0.670		0.015	0.099	0.449		0.562	0.750
250	0.189	-0.208	-0.694		0.189	-0.208	-0.694		0.036	0.043	0.481		0.560	0.749
251	0.152	0.525	-0.522		0.152	0.525	-0.522		0.023	0.276	0.272		0.571	0.756
252	-0.134	0.389	0.631		-0.134	0.389	0.631		0.018	0.151	0.398		0.568	0.753
253	-0.164	0.643	-0.332		-0.164	0.643	-0.332		0.027	0.414	0.110		0.551	0.742
254	0.146	0.171	0.693		0.146	0.171	0.693		0.021	0.029	0.481		0.532	0.729
255	-0.491	0.018	-0.504		-0.491	0.018	-0.504		0.241	0.000	0.254		0.495	0.704
256	-0.086	-0.245	-0.630		-0.086	-0.245	-0.630		0.007	0.060	0.396		0.464	0.681
257	-0.110	0.590	-0.352		-0.110	0.590	-0.352		0.012	0.348	0.124		0.484	0.696
258	0.185	0.301	0.579		0.185	0.301	0.579		0.034	0.091	0.336		0.460	0.679
259	-0.302	0.549	0.208		-0.302	0.549	0.208		0.091	0.302	0.043		0.436	0.660
260	-0.046	0.372	0.513		-0.046	0.372	0.513		0.002	0.139	0.263		0.404	0.635
261	0.174	0.504	0.346		0.174	0.504	0.346		0.030	0.254	0.119		0.403	0.635
262	-0.425	-0.239	-0.374		-0.425	-0.239	-0.374		0.181	0.057	0.140		0.377	0.614
263	-0.210	0.449	0.341		-0.210	0.449	0.341		0.044	0.202	0.116		0.362	0.602
264	-0.113	0.339	0.464		-0.113	0.339	0.464		0.013	0.115	0.215		0.343	0.586
265	0.134	0.003	0.581		0.134	0.003	0.581		0.018	0.000	0.338		0.356	0.597
266	0.015	0.494	0.231		0.015	0.494	0.231		0.000	0.244	0.053		0.298	0.546
267	-0.223	0.492	0.100		-0.223	0.492	0.100		0.050	0.242	0.010		0.301	0.549
268	0.169	0.405	-0.311		0.169	0.405	-0.311		0.029	0.164	0.097		0.290	0.538
269	0.488	-0.219	-0.051		0.488	-0.219	-0.051		0.238	0.048	0.003		0.289	0.537
270	0.400	0.126	0.301		0.400	0.126	0.301		0.160	0.016	0.090		0.266	0.516
271	0.061	0.512	0.082		0.061	0.512	0.082		0.004	0.262	0.007		0.272	0.522
272	0.406	0.246	-0.021		0.406	0.246	-0.021		0.165	0.060	0.000		0.226	0.475

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
273	-0.350	0.110	0.305		-0.350	0.110	0.305		0.123	0.012	0.093		0.228	0.478
274	-0.423	-0.029	-0.201		-0.423	-0.029	-0.201		0.179	0.001	0.040		0.220	0.469
275	0.388	0.047	0.218		0.388	0.047	0.218		0.151	0.002	0.047		0.200	0.448
276	-0.031	0.291	0.280		-0.031	0.291	0.280		0.001	0.085	0.079		0.164	0.405
277	-0.071	-0.075	0.346		-0.071	-0.075	0.346		0.005	0.006	0.120		0.130	0.361
278	0.263	0.152	-0.094		0.263	0.152	-0.094		0.069	0.023	0.009		0.101	0.318
279	0.248	-0.178	0.011		0.248	-0.178	0.011		0.061	0.032	0.000		0.093	0.306
280	0.035	0.014	-0.063		0.035	0.014	-0.063		0.001	0.000	0.004		0.005	0.073
281	-0.932	0.286	-2.489		-0.932	0.286	-2.489		0.869	0.082	6.196		7.147	2.673
282	1.728	-4.157	-0.889		1.728	-4.157	-0.889		2.987	17.284	0.790		21.060	4.589
283	-3.868	-1.133	0.696		-3.868	-1.133	0.696		14.964	1.283	0.485		16.732	4.090
284	3.236	-1.538	-0.484		3.236	-1.538	-0.484		10.472	2.365	0.234		13.071	3.615
285	1.740	-2.014	2.156		1.740	-2.014	2.156		3.026	4.055	4.647		11.728	3.425
286	-3.257	-0.368	-0.345		-3.257	-0.368	-0.345		10.608	0.135	0.119		10.862	3.296
287	1.719	-1.586	2.260		1.719	-1.586	2.260		2.954	2.516	5.109		10.579	3.253
288	2.400	-1.269	1.745		2.400	-1.268	1.745		5.761	1.609	3.045		10.415	3.227
289	0.734	0.850	-2.824		0.734	0.850	-2.824		0.538	0.722	7.972		9.233	3.039
290	-0.105	0.701	-2.901		-0.105	0.701	-2.901		0.011	0.491	8.416		8.918	2.986
291	1.992	-0.402	-2.069		1.992	-0.402	-2.069		3.966	0.162	4.282		8.411	2.900
292	0.616	-1.333	-2.493		0.616	-1.333	-2.493		0.379	1.777	6.217		8.373	2.894
293	1.077	0.283	-2.682		1.077	0.283	-2.682		1.159	0.080	7.193		8.433	2.904
294	1.500	1.736	1.723		1.500	1.736	1.723		2.249	3.015	2.969		8.233	2.869
295	2.168	-1.746	0.469		2.168	-1.746	0.469		4.701	3.047	0.220		7.968	2.823
296	-0.798	-2.339	1.322		-0.798	-2.339	1.322		0.636	5.473	1.747		7.857	2.803
297	1.727	1.821	-0.936		1.727	1.821	-0.936		2.984	3.316	0.876		7.176	2.679

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
298	0.819	-0.546	-2.424		0.819	-0.546	-2.424		0.671	0.298	5.874		6.843	2.616
299	1.329	-0.888	2.008		1.329	-0.888	2.008		1.766	0.789	4.034		6.589	2.567
300	1.557	1.757	1.058		1.557	1.757	1.058		2.423	3.089	1.120		6.632	2.575
301	0.675	1.993	1.406		0.675	1.993	1.406		0.455	3.974	1.976		6.405	2.531
302	-0.546	-1.960	1.480		-0.546	-1.960	1.480		0.298	3.842	2.191		6.331	2.516
303	0.326	-2.062	1.439		0.326	-2.062	1.439		0.106	4.251	2.070		6.427	2.535
304	-0.593	-0.842	-2.287		-0.593	-0.842	-2.287		0.352	0.710	5.232		6.294	2.509
305	-1.453	-1.790	-0.957		-1.453	-1.790	-0.957		2.111	3.205	0.915		6.232	2.496
306	0.453	-1.909	1.549		0.453	-1.909	1.549		0.205	3.644	2.399		6.248	2.500
307	0.462	-0.328	-2.440		0.462	-0.328	-2.440		0.213	0.107	5.951		6.272	2.504
308	-0.726	2.344	0.181		-0.726	2.344	0.181		0.527	5.492	0.033		6.052	2.460
309	-2.392	-0.107	-0.635		-2.392	-0.107	-0.635		5.723	0.011	0.403		6.137	2.477
310	1.614	1.779	0.394		1.614	1.779	0.394		2.604	3.164	0.155		5.922	2.434
311	-1.270	-1.749	1.019		-1.270	-1.749	1.019		1.613	3.058	1.039		5.709	2.389
312	1.003	-2.109	-0.351		1.003	-2.109	-0.351		1.006	4.446	0.123		5.575	2.361
313	-0.575	2.229	0.544		-0.575	2.229	0.544		0.330	4.969	0.296		5.595	2.365
314	-0.438	-1.945	-1.243		-0.438	-1.945	-1.243		0.192	3.783	1.544		5.519	2.349
315	1.113	1.768	-1.055		1.113	1.768	-1.055		1.238	3.126	1.113		5.476	2.340
316	1.816	1.419	0.217		1.816	1.419	0.217		3.298	2.015	0.047		5.360	2.315
317	-0.163	1.996	-1.004		-0.163	1.996	-1.004		0.027	3.986	1.009		5.021	2.241
318	0.741	-0.791	1.981		0.741	-0.791	1.981		0.549	0.626	3.925		5.099	2.258
319	1.905	-0.929	0.748		1.905	-0.929	0.748		3.628	0.863	0.560		5.050	2.247
320	-1.794	1.059	0.845		-1.794	1.059	0.845		3.219	1.122	0.714		5.055	2.248
321	-2.229	0.044	0.200		-2.229	0.044	0.200		4.967	0.002	0.040		5.009	2.238
322	1.707	-1.076	-0.893		1.707	-1.076	-0.893		2.914	1.157	0.798		4.869	2.207

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
323	1.352	-1.550	-0.841		1.352	-1.550	-0.841		1.828	2.404	0.707		4.939	2.222
324	0.184	-0.229	-2.213		0.184	-0.229	-2.213		0.034	0.053	4.896		4.983	2.232
325	1.286	-1.778	-0.419		1.286	-1.778	-0.419		1.655	3.162	0.176		4.992	2.234
326	-0.189	-2.087	0.635		-0.189	-2.087	0.635		0.036	4.357	0.404		4.796	2.190
327	0.033	-1.634	1.472		0.033	-1.634	1.472		0.001	2.668	2.166		4.836	2.199
328	-1.925	0.921	0.392		-1.925	0.921	0.392		3.707	0.849	0.154		4.709	2.170
329	0.560	-0.530	2.029		0.560	-0.530	2.029		0.314	0.281	4.119		4.714	2.171
330	1.895	1.040	-0.096		1.895	1.040	-0.096		3.590	1.081	0.009		4.679	2.163
331	0.910	1.905	0.434		0.910	1.905	0.434		0.829	3.628	0.188		4.645	2.155
332	-0.491	2.073	0.081		-0.491	2.073	0.081		0.241	4.295	0.006		4.543	2.131
333	0.369	-0.478	2.055		0.369	-0.478	2.055		0.136	0.228	4.222		4.586	2.142
334	-0.804	0.668	-1.838		-0.804	0.668	-1.838		0.646	0.446	3.378		4.470	2.114
335	-0.540	-1.849	0.794		-0.540	-1.849	0.794		0.291	3.418	0.630		4.339	2.083
336	-0.636	1.763	-0.898		-0.636	1.763	-0.898		0.404	3.108	0.806		4.318	2.078
337	1.245	1.601	0.163		1.245	1.601	0.163		1.551	2.565	0.026		4.142	2.035
338	0.045	-0.719	1.904		0.045	-0.719	1.904		0.002	0.517	3.625		4.144	2.036
339	1.504	1.284	0.437		1.504	1.284	0.437		2.262	1.648	0.191		4.101	2.025
340	-0.328	-1.523	1.261		-0.328	-1.523	1.261		0.107	2.321	1.591		4.019	2.005
341	0.046	-1.707	1.030		0.046	-1.707	1.030		0.002	2.913	1.061		3.977	1.994
342	-0.573	-0.665	1.755		-0.573	-0.665	1.755		0.329	0.442	3.081		3.852	1.963
343	-0.330	-0.357	-1.903		-0.330	-0.357	-1.903		0.109	0.128	3.620		3.857	1.964
344	-0.180	-0.068	-1.954		-0.180	-0.068	-1.954		0.033	0.005	3.819		3.856	1.964
345	0.843	-0.913	1.469		0.843	-0.913	1.469		0.711	0.834	2.157		3.702	1.924
346	1.699	0.122	0.897		1.699	0.122	0.897		2.887	0.015	0.805		3.706	1.925
347	-1.837	0.512	-0.044		-1.837	0.512	-0.044		3.373	0.262	0.002		3.637	1.907

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
348	0.057	-1.702	0.814		0.057	-1.702	0.814		0.003	2.897	0.662		3.563	1.887
349	-1.594	-0.794	0.584		-1.594	-0.794	0.584		2.542	0.630	0.341		3.513	1.874
350	0.169	1.257	-1.395		0.169	1.257	-1.395		0.029	1.579	1.945		3.553	1.885
351	0.225	-1.555	1.008		0.225	-1.555	1.008		0.051	2.419	1.017		3.487	1.867
352	0.132	-0.235	-1.827		0.132	-0.235	-1.827		0.018	0.055	3.339		3.412	1.847
353	-0.242	1.703	-0.716		-0.242	1.703	-0.716		0.059	2.899	0.513		3.470	1.863
354	1.276	-0.648	1.169		1.276	-0.648	1.169		1.627	0.419	1.367		3.413	1.847
355	0.308	-0.483	-1.752		0.308	-0.483	-1.752		0.095	0.233	3.070		3.398	1.843
356	-0.119	-0.608	1.737		-0.119	-0.608	1.737		0.014	0.369	3.018		3.402	1.844
357	0.549	-1.733	-0.104		0.549	-1.733	-0.104		0.302	3.004	0.011		3.316	1.821
358	-0.492	-1.577	-0.701		-0.492	-1.577	-0.701		0.242	2.488	0.492		3.221	1.795
359	-0.053	-1.635	0.755		-0.053	-1.635	0.755		0.003	2.672	0.570		3.245	1.801
360	-0.807	0.909	1.279		-0.807	0.909	1.279		0.651	0.826	1.636		3.114	1.765
361	-0.474	0.408	-1.668		-0.474	0.408	-1.668		0.224	0.167	2.782		3.173	1.781
362	-0.925	0.072	-1.478		-0.925	0.072	-1.478		0.856	0.005	2.184		3.046	1.745
363	1.264	0.847	-0.833		1.264	0.847	-0.833		1.598	0.717	0.694		3.009	1.735
364	-1.433	-0.186	-0.971		-1.433	-0.186	-0.971		2.054	0.035	0.943		3.031	1.741
365	-0.104	-1.094	1.353		-0.104	-1.094	1.353		0.011	1.196	1.831		3.037	1.743
366	0.725	1.527	0.365		0.725	1.527	0.365		0.526	2.333	0.133		2.993	1.730
367	-0.554	-1.441	-0.746		-0.554	-1.441	-0.746		0.307	2.076	0.556		2.939	1.714
368	0.171	-1.622	-0.472		0.171	-1.622	-0.472		0.029	2.630	0.223		2.882	1.698
369	0.785	-0.495	1.399		0.785	-0.495	1.398		0.616	0.245	1.956		2.817	1.678
370	-0.503	-0.792	1.403		-0.503	-0.792	1.403		0.253	0.627	1.969		2.849	1.688
371	1.262	0.497	0.994		1.262	0.497	0.994		1.593	0.247	0.987		2.828	1.682
372	-0.522	-0.911	1.323		-0.522	-0.911	1.323		0.273	0.831	1.751		2.854	1.689

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
373	0.270	-1.100	-1.214		0.270	-1.100	-1.214		0.073	1.210	1.475		2.758	1.661
374	-0.052	-1.668	0.127		-0.052	-1.668	0.127		0.003	2.784	0.016		2.803	1.674
375	0.690	-0.410	-1.449		0.690	-0.410	-1.449		0.477	0.168	2.100		2.745	1.657
376	0.719	-1.147	-0.965		0.719	-1.147	-0.965		0.517	1.315	0.932		2.763	1.662
377	-1.501	-0.430	0.533		-1.501	-0.430	0.533		2.253	0.185	0.284		2.723	1.650
378	1.351	0.194	-0.910		1.351	0.194	-0.910		1.824	0.038	0.829		2.691	1.640
379	0.248	-1.532	0.549		0.248	-1.532	0.549		0.061	2.346	0.301		2.708	1.646
380	-0.443	0.800	-1.362		-0.443	0.800	-1.362		0.196	0.639	1.855		2.690	1.640
381	-1.432	-0.339	0.690		-1.432	-0.339	0.690		2.052	0.115	0.475		2.642	1.626
382	0.524	-1.533	0.086		0.524	-1.533	0.086		0.275	2.349	0.007		2.632	1.622
383	-0.287	-0.288	1.553		-0.287	-0.288	1.553		0.082	0.083	2.411		2.577	1.605
384	0.035	-1.579	0.239		0.035	-1.579	0.239		0.001	2.492	0.057		2.551	1.597
385	0.606	-0.582	-1.342		0.606	-0.582	-1.342		0.368	0.339	1.802		2.509	1.584
386	-0.421	1.468	0.345		-0.421	1.468	0.345		0.177	2.155	0.119		2.451	1.566
387	0.320	-1.265	0.859		0.320	-1.265	0.859		0.103	1.601	0.737		2.441	1.562
388	0.891	1.267	-0.273		0.891	1.267	-0.273		0.794	1.606	0.075		2.474	1.573
389	0.158	-0.548	1.445		0.158	-0.548	1.445		0.025	0.301	2.089		2.414	1.554
390	-0.037	-0.934	-1.250		-0.037	-0.934	-1.250		0.001	0.873	1.563		2.437	1.561
391	0.524	-0.291	-1.422		0.523	-0.291	-1.422		0.274	0.084	2.021		2.380	1.543
392	-0.232	-1.123	1.026		-0.232	-1.123	1.026		0.054	1.260	1.054		2.367	1.539
393	-0.420	1.458	-0.179		-0.420	1.458	-0.179		0.176	2.124	0.032		2.333	1.527
394	-1.003	-1.149	-0.014		-1.003	-1.149	-0.014		1.005	1.320	0.000		2.326	1.525
395	-1.180	0.952	-0.125		-1.180	0.952	-0.125		1.393	0.906	0.016		2.315	1.521
396	0.178	1.303	0.768		0.178	1.303	0.768		0.032	1.698	0.589		2.320	1.523
397	1.259	-0.821	-0.249		1.259	-0.821	-0.249		1.584	0.674	0.062		2.320	1.523

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
398	-0.831	-1.112	-0.602		-0.831	-1.112	-0.602		0.690	1.237	0.362		2.290	1.513
399	0.012	0.199	-1.481		0.012	0.199	-1.481		0.000	0.040	2.193		2.233	1.494
400	0.973	1.081	0.325		0.973	1.081	0.325		0.947	1.169	0.106		2.221	1.490
401	-0.650	0.525	1.217		-0.650	0.525	1.217		0.422	0.276	1.480		2.178	1.476
402	0.067	-1.265	0.716		0.067	-1.265	0.716		0.005	1.601	0.513		2.119	1.456
403	-0.128	0.869	1.162		-0.128	0.869	1.162		0.016	0.756	1.351		2.123	1.457
404	0.386	-1.222	0.649		0.386	-1.222	0.649		0.149	1.493	0.421		2.063	1.436
405	0.270	-0.485	1.336		0.270	-0.485	1.336		0.073	0.235	1.784		2.092	1.446
406	-0.868	-0.870	-0.738		-0.868	-0.870	-0.738		0.753	0.757	0.544		2.054	1.433
407	-0.588	0.680	-1.137		-0.588	0.680	-1.137		0.346	0.462	1.292		2.100	1.449
408	0.000	0.144	-1.412		0.000	0.144	-1.412		0.000	0.021	1.993		2.014	1.419
409	0.806	-0.971	0.653		0.806	-0.971	0.653		0.649	0.943	0.427		2.019	1.421
410	-0.173	-1.291	0.565		-0.173	-1.291	0.565		0.030	1.668	0.320		2.018	1.420
411	0.331	-0.008	-1.375		0.331	-0.008	-1.375		0.109	0.000	1.889		1.999	1.414
412	0.372	1.270	0.465		0.372	1.270	0.465		0.138	1.612	0.216		1.967	1.402
413	0.819	0.322	-1.065		0.819	0.322	-1.065		0.670	0.104	1.135		1.909	1.382
414	0.421	-0.692	-1.127		0.421	-0.692	-1.127		0.177	0.479	1.271		1.927	1.388
415	0.106	-0.244	1.336		0.106	-0.244	1.336		0.011	0.060	1.784		1.855	1.362
416	-0.186	-1.210	0.595		-0.186	-1.210	0.595		0.035	1.465	0.354		1.853	1.361
417	0.904	0.263	-0.955		0.904	0.263	-0.955		0.818	0.069	0.913		1.800	1.342
418	1.254	0.406	0.222		1.254	0.406	0.222		1.572	0.165	0.049		1.786	1.337
419	-0.415	-0.747	-1.051		-0.415	-0.747	-1.051		0.172	0.558	1.104		1.834	1.354
420	-0.109	0.534	-1.230		-0.109	0.534	-1.230		0.012	0.285	1.512		1.810	1.345
421	0.412	-1.188	0.486		0.412	-1.188	0.486		0.169	1.411	0.236		1.817	1.348
422	0.441	-1.146	0.572		0.441	-1.146	0.572		0.194	1.313	0.327		1.834	1.354

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
423	0.170	0.182	-1.312		0.170	0.182	-1.312		0.029	0.033	1.722		1.784	1.336
424	-0.950	0.896	0.221		-0.950	0.896	0.221		0.902	0.802	0.049		1.753	1.324
425	0.316	-0.467	1.187		0.316	-0.467	1.187		0.100	0.218	1.409		1.727	1.314
426	-0.999	-0.557	0.636		-0.999	-0.557	0.636		0.999	0.311	0.405		1.714	1.309
427	-0.395	-0.885	0.870		-0.395	-0.885	0.870		0.156	0.782	0.757		1.695	1.302
428	0.548	-0.794	0.875		0.548	-0.794	0.875		0.301	0.630	0.766		1.696	1.302
429	-1.077	-0.572	0.349		-1.077	-0.572	0.349		1.161	0.327	0.122		1.609	1.269
430	-0.231	-0.199	-1.247		-0.231	-0.199	-1.247		0.053	0.040	1.556		1.649	1.284
431	0.940	0.739	-0.456		0.940	0.739	-0.456		0.883	0.547	0.208		1.638	1.280
432	-0.174	-1.117	0.607		-0.174	-1.117	0.607		0.030	1.249	0.368		1.647	1.283
433	-0.184	0.792	0.949		-0.184	0.792	0.949		0.034	0.628	0.901		1.562	1.250
434	0.659	-0.464	-0.969		0.659	-0.464	-0.969		0.434	0.215	0.938		1.587	1.260
435	-0.184	0.792	0.949		-0.184	0.792	0.949		0.034	0.628	0.901		1.562	1.250
436	-1.221	0.098	0.214		-1.221	0.098	0.214		1.490	0.010	0.046		1.546	1.243
437	-0.192	0.809	0.903		-0.192	0.809	0.903		0.037	0.654	0.815		1.506	1.227
438	-0.033	1.233	0.158		-0.033	1.233	0.158		0.001	1.519	0.025		1.545	1.243
439	-0.559	0.975	0.466		-0.559	0.975	0.466		0.312	0.951	0.217		1.481	1.217
440	0.752	-0.762	0.560		0.752	-0.762	0.560		0.566	0.581	0.314		1.461	1.209
441	0.661	-0.831	-0.601		0.661	-0.831	-0.601		0.437	0.690	0.362		1.489	1.220
442	-0.072	0.343	-1.153		-0.072	0.343	-1.153		0.005	0.117	1.329		1.451	1.205
443	-0.845	-0.774	0.405		-0.845	-0.774	0.405		0.714	0.599	0.164		1.476	1.215
444	-1.094	0.534	0.062		-1.094	0.534	0.062		1.197	0.285	0.004		1.486	1.219
445	-0.830	-0.858	-0.027		-0.830	-0.858	-0.027		0.689	0.736	0.001		1.426	1.194
446	0.565	-0.945	-0.441		0.565	-0.945	-0.441		0.319	0.892	0.194		1.406	1.186
447	-0.282	0.338	-1.106		-0.282	0.338	-1.106		0.080	0.114	1.224		1.417	1.191

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
448	0.296	-0.610	-0.974		0.296	-0.610	-0.974		0.087	0.372	0.949		1.408	1.187
449	0.480	-1.062	0.092		0.480	-1.062	0.092		0.230	1.129	0.008		1.367	1.169
450	-0.522	1.024	-0.237		-0.522	1.024	-0.237		0.272	1.048	0.056		1.376	1.173
451	-0.486	0.067	-1.064		-0.486	0.067	-1.064		0.236	0.004	1.131		1.372	1.171
452	0.640	0.595	-0.773		0.640	0.595	-0.773		0.410	0.355	0.598		1.362	1.167
453	-0.204	-0.268	1.126		-0.204	-0.268	1.126		0.042	0.072	1.268		1.381	1.175
454	-0.388	-0.984	0.506		-0.388	-0.984	0.506		0.150	0.968	0.256		1.374	1.172
455	0.496	0.606	-0.827		0.496	0.606	-0.827		0.246	0.368	0.684		1.298	1.139
456	0.270	-0.659	0.908		0.270	-0.659	0.908		0.073	0.435	0.824		1.332	1.154
457	0.425	-1.042	-0.211		0.425	-1.042	-0.211		0.180	1.086	0.045		1.311	1.145
458	0.502	1.000	0.018		0.502	1.000	0.018		0.252	1.000	0.000		1.253	1.119
459	-0.361	0.912	0.536		-0.361	0.912	0.536		0.130	0.831	0.287		1.249	1.117
460	0.158	-0.776	-0.756		0.158	-0.776	-0.756		0.025	0.602	0.571		1.198	1.094
461	0.804	0.723	0.224		0.804	0.723	0.224		0.646	0.523	0.050		1.219	1.104
462	0.489	-0.981	0.048		0.489	-0.981	0.048		0.239	0.963	0.002		1.204	1.097
463	-0.176	1.084	-0.081		-0.176	1.084	-0.081		0.031	1.174	0.007		1.212	1.101
464	0.492	0.486	0.822		0.492	0.486	0.822		0.242	0.237	0.676		1.154	1.074
465	0.224	-1.050	-0.166		0.224	-1.050	-0.166		0.050	1.103	0.027		1.180	1.086
466	0.028	-0.562	0.935		0.028	-0.562	0.935		0.001	0.316	0.874		1.190	1.091
467	0.682	0.453	-0.685		0.682	0.453	-0.685		0.465	0.205	0.469		1.139	1.067
468	-0.044	0.258	-1.018		-0.044	0.258	-1.018		0.002	0.067	1.037		1.105	1.051
469	-1.033	0.258	-0.058		-1.033	0.258	-0.058		1.068	0.066	0.003		1.137	1.066
470	-0.622	0.804	-0.283		-0.622	0.804	-0.283		0.387	0.647	0.080		1.114	1.055
471	-0.476	0.923	-0.161		-0.476	0.923	-0.161		0.227	0.852	0.026		1.105	1.051
472	-0.115	-0.845	-0.580		-0.115	-0.845	-0.580		0.013	0.714	0.336		1.063	1.031

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
473	0.394	-0.857	-0.388		0.394	-0.857	-0.388		0.155	0.734	0.151		1.040	1.020
474	-0.557	-0.811	0.263		-0.557	-0.811	0.263		0.310	0.658	0.069		1.037	1.019
475	0.835	0.590	0.073		0.835	0.590	0.073		0.697	0.348	0.005		1.050	1.025
476	-0.111	-1.016	-0.040		-0.111	-1.016	-0.040		0.012	1.032	0.002		1.046	1.023
477	0.825	0.365	-0.464		0.825	0.365	-0.464		0.681	0.133	0.215		1.029	1.014
478	0.169	0.567	0.812		0.169	0.567	0.812		0.028	0.322	0.659		1.009	1.005
479	0.308	-0.611	0.704		0.308	-0.611	0.704		0.095	0.373	0.495		0.963	0.981
480	-0.304	0.933	-0.129		-0.304	0.933	-0.129		0.093	0.870	0.017		0.980	0.990
481	0.353	0.186	0.881		0.353	0.186	0.881		0.125	0.035	0.776		0.935	0.967
482	-0.538	-0.753	-0.200		-0.538	-0.753	-0.200		0.290	0.567	0.040		0.896	0.947
483	0.197	0.056	-0.926		0.197	0.056	-0.926		0.039	0.003	0.857		0.899	0.948
484	0.140	-0.195	-0.903		0.140	-0.195	-0.903		0.019	0.038	0.815		0.873	0.934
485	0.639	-0.451	-0.499		0.639	-0.451	-0.499		0.408	0.203	0.249		0.860	0.928
486	-0.042	0.761	0.521		-0.042	0.761	0.521		0.002	0.580	0.272		0.853	0.924
487	-0.070	0.835	-0.381		-0.070	0.835	-0.381		0.005	0.697	0.145		0.846	0.920
488	0.004	0.491	0.747		0.004	0.491	0.747		0.000	0.241	0.558		0.798	0.893
489	0.109	0.138	0.888		0.109	0.138	0.888		0.012	0.019	0.789		0.820	0.906
490	-0.796	0.277	0.345		-0.796	0.277	0.345		0.633	0.077	0.119		0.829	0.910
491	-0.802	-0.210	-0.283		-0.802	-0.210	-0.283		0.643	0.044	0.080		0.767	0.876
492	0.018	0.433	0.773		0.018	0.433	0.772		0.000	0.187	0.597		0.785	0.886
493	0.149	0.361	-0.791		0.149	0.361	-0.791		0.022	0.130	0.626		0.779	0.882
494	0.537	0.110	-0.700		0.537	0.110	-0.700		0.289	0.012	0.489		0.790	0.889
495	0.204	0.137	-0.850		0.204	0.137	-0.850		0.042	0.019	0.722		0.782	0.884
496	0.267	-0.197	0.822		0.267	-0.197	0.822		0.071	0.039	0.675		0.785	0.886
497	0.018	0.433	0.773		0.018	0.433	0.772		0.000	0.187	0.597		0.785	0.886

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
498	0.018	0.433	0.773		0.018	0.433	0.772		0.000	0.187	0.597		0.785	0.886
499	0.185	0.621	-0.583		0.185	0.621	-0.583		0.034	0.385	0.340		0.759	0.871
500	-0.127	0.813	0.284		-0.127	0.813	0.284		0.016	0.662	0.081		0.759	0.871
501	0.737	-0.049	0.398		0.737	-0.049	0.398		0.544	0.002	0.159		0.705	0.840
502	0.345	0.678	0.316		0.345	0.678	0.316		0.119	0.460	0.100		0.678	0.824
503	0.035	-0.832	-0.073		0.035	-0.832	-0.073		0.001	0.692	0.005		0.699	0.836
504	0.345	0.678	0.316		0.345	0.678	0.316		0.119	0.460	0.100		0.678	0.824
505	-0.185	-0.154	-0.800		-0.185	-0.154	-0.800		0.034	0.024	0.641		0.699	0.836
506	-0.638	-0.258	0.462		-0.638	-0.258	0.462		0.407	0.067	0.213		0.687	0.829
507	-0.023	-0.757	-0.263		-0.023	-0.757	-0.263		0.001	0.572	0.069		0.642	0.801
508	0.312	-0.222	0.712		0.312	-0.222	0.712		0.097	0.049	0.507		0.653	0.808
509	-0.767	0.011	-0.270		-0.767	0.011	-0.270		0.588	0.000	0.073		0.661	0.813
510	-0.030	0.703	0.407		-0.030	0.703	0.407		0.001	0.494	0.166		0.661	0.813
511	-0.033	-0.645	-0.475		-0.033	-0.645	-0.475		0.001	0.415	0.226		0.642	0.801
512	-0.169	-0.614	0.490		-0.169	-0.613	0.490		0.029	0.376	0.240		0.645	0.803
513	0.001	0.324	-0.745		0.001	0.324	-0.745		0.000	0.105	0.555		0.659	0.812
514	-0.110	0.282	0.725		-0.110	0.282	0.725		0.012	0.080	0.525		0.617	0.785
515	0.444	0.117	-0.620		0.443	0.117	-0.620		0.197	0.014	0.385		0.595	0.771
516	0.110	0.034	-0.741		0.110	0.034	-0.741		0.012	0.001	0.550		0.563	0.750
517	-0.429	-0.554	-0.307		-0.429	-0.554	-0.307		0.184	0.307	0.094		0.585	0.765
518	-0.058	0.679	-0.224		-0.058	0.679	-0.224		0.003	0.461	0.050		0.515	0.717
519	0.070	-0.668	-0.260		0.070	-0.668	-0.260		0.005	0.446	0.067		0.518	0.720
520	-0.274	0.564	-0.338		-0.274	0.564	-0.338		0.075	0.318	0.114		0.507	0.712
521	-0.048	0.107	-0.701		-0.048	0.107	-0.701		0.002	0.011	0.491		0.505	0.711
522	0.474	-0.512	0.150		0.474	-0.512	0.150		0.225	0.262	0.022		0.509	0.714

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
523	-0.259	0.206	-0.600		-0.259	0.206	-0.600		0.067	0.042	0.360		0.470	0.685
524	0.295	-0.605	-0.074		0.295	-0.605	-0.074		0.087	0.366	0.005		0.459	0.677
525	-0.658	0.088	-0.025		-0.658	0.088	-0.025		0.433	0.008	0.001		0.442	0.665
526	-0.162	0.614	-0.182		-0.162	0.614	-0.182		0.026	0.377	0.033		0.436	0.660
527	-0.038	0.634	-0.046		-0.038	0.634	-0.046		0.001	0.402	0.002		0.406	0.637
528	-0.329	-0.067	-0.526		-0.329	-0.067	-0.526		0.108	0.004	0.277		0.390	0.624
529	0.206	0.131	0.570		0.206	0.131	0.570		0.043	0.017	0.325		0.385	0.620
530	0.192	0.189	0.545		0.192	0.189	0.545		0.037	0.036	0.297		0.369	0.607
531	-0.535	0.097	0.197		-0.535	0.097	0.197		0.286	0.009	0.039		0.334	0.578
532	-0.535	-0.220	-0.075		-0.535	-0.220	-0.075		0.286	0.048	0.006		0.340	0.583
533	0.394	-0.170	0.368		0.394	-0.170	0.368		0.155	0.029	0.135		0.320	0.566
534	-0.438	0.131	-0.294		-0.438	0.131	-0.294		0.192	0.017	0.087		0.296	0.544
535	0.231	-0.399	-0.254		0.231	-0.399	-0.254		0.053	0.159	0.064		0.277	0.526
536	0.360	-0.370	-0.098		0.360	-0.370	-0.098		0.129	0.137	0.010		0.276	0.525
537	0.026	0.312	-0.385		0.026	0.312	-0.385		0.001	0.097	0.148		0.246	0.496
538	0.231	0.164	-0.395		0.231	0.164	-0.395		0.053	0.027	0.156		0.236	0.486
539	0.075	0.454	0.108		0.075	0.454	0.108		0.006	0.206	0.012		0.224	0.473
540	-0.352	-0.258	0.034		-0.352	-0.258	0.034		0.124	0.066	0.001		0.191	0.437
541	-0.022	0.323	-0.281		-0.022	0.323	-0.281		0.000	0.104	0.079		0.183	0.428
542	-0.031	0.291	0.280		-0.031	0.291	0.280		0.001	0.085	0.079		0.164	0.405
543	-0.211	0.079	-0.262		-0.211	0.079	-0.262		0.045	0.006	0.069		0.120	0.346
544	-0.047	-0.350	-0.006		-0.047	-0.350	-0.006		0.002	0.123	0.000		0.125	0.354
545	0.011	0.208	-0.251		0.011	0.208	-0.251		0.000	0.043	0.063		0.106	0.326
546	-0.164	-0.112	-0.239		-0.164	-0.112	-0.239		0.027	0.013	0.057		0.096	0.310
547	-0.150	-0.017	0.231		-0.150	-0.017	0.231		0.022	0.000	0.053		0.076	0.276

	Factor score				Differences from mean for each observation				Squared differences from mean				Total differences squared	Square root of total
548	0.180	-0.085	0.150		0.180	-0.085	0.150		0.032	0.007	0.022		0.062	0.249
549	0.093	-0.071	-0.182		0.093	-0.071	-0.182		0.009	0.005	0.033		0.047	0.216
550	0.000	-0.078	0.071		0.000	-0.078	0.071		0.000	0.006	0.005		0.011	0.106

Appendix X **Confirmatory analysis on invalid cases and outliers**

Communalities

	Initial	Extraction
Q7.2 I understand what ___ is trying to tell me:	1.000	.645
Q7.3 ___ stands out from its competitors:	1.000	.643
Q7.4 I hold ___ in high regard:	1.000	.758
Q7.5___lives up to its promises:	1.000	.795
Q7.6 ___ offers clear advantage vs the competition:	1.000	.635
Q7.7 I am strongly committed to fly with___	1.000	.664
Q7.8 I can count on ___	1.000	.745
Q7.9 ___ is innovative:	1.000	.668
Q7.10___ cares about its customers:	1.000	.743
Q7.12 I can never go wrong flying with ___	1.000	.644
Q7.13 I would recommend flying with ___	1.000	.718
Q7.14 ___ consistently satisfies me:	1.000	.676
Q7.15 If a problem with___'s service arose,	1.000	.699
Q7.16 I would pay extra to fly ___	1.000	.574
Q7.17 I plan to fly ___ in the	1.000	.562
Q7.18 Flying with ___ represents excellent value for money:	1.000	.640
Q7.19 When I think of flying with ___ I have positive thoughts:	1.000	.714
Q7.20 I would forgive ___ if occasionally the product seemed sub-standard:	1.000	.669
Q7.21 I talk about___ with my friends:	1.000	.652

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.660	61.366	61.366	11.660	61.366	61.366	8.493	44.701	44.701
2	1.185	6.236	67.602	1.185	6.236	67.602	4.351	22.901	67.602
3	.641	3.376	70.978						
4	.552	2.904	73.882						
5	.530	2.787	76.669						
6	.447	2.352	79.021						
7	.432	2.272	81.293						
8	.421	2.214	83.507						
9	.393	2.071	85.577						
10	.363	1.913	87.490						
11	.342	1.801	89.291						
12	.338	1.778	91.069						
13	.297	1.562	92.632						
14	.274	1.444	94.076						
15	.273	1.438	95.513						
16	.242	1.275	96.788						
17	.222	1.171	97.959						
18	.207	1.087	99.046						
19	.181	.954	100.000						

Extraction Method: Principal Component Analysis.

Rotated Component Matrix[a]

	Component	
	1	2
Q7.4 I hold ___ in high regard:	.845	.209
Q7.10___ cares about its customers:	.824	.254
Q7.19 When I think of flying with ___ I have positive thoughts:	.818	.210
Q7.5___lives up to its promises:	.816	.359
Q7.8 I can count on ___	.794	.339
Q7.13 I would recommend flying with ___	.789	.310
Q7.15 If a problem with___'s service arose,	.781	.299
Q7.3 ___ stands out from its competitors:	.710	.373
Q7.9 ___ is innovative:	.684	.447
Q7.12 I can never go wrong flying with ___	.683	.422
Q7.6 ___ offers clear advantage vs the competition:	.678	.419
Q7.2 I understand what ___ is trying to tell me:	.668	.446
Q7.14 ___ consistently satisfies me:	.663	.486
Q7.17 I plan to fly ___ in the	.601	.448
Q7.18 Flying with ___ represents excellent value for money:	.573	.559
Q7.20 I would forgive ___ if occasionally the product seemed sub-standard:	.166	.801
Q7.21 I talk about___ with my friends:	.215	.778
Q7.7 I am strongly committed to fly with___	.427	.694
Q7.16 I would pay extra to fly ___	.417	.633

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Appendix Y **Critical values of the chi-square distribution**

	p	
Degrees of freedom	0.05	0.01
1	3.84	6.63
2	5.99	9.21
3	7.81	11.34
4	9.49	13.28
5	11.07	
6	12.59	16.81
7	14.07	18.48
8	15.51	20.09
9	16.92	21.67
10	18.31	23.21
11	19.68	24.72
12	21.03	26.22
13	22.36	27.69
14	23.68	29.14
15	25.00	30.58
16	26.30	32.00
17	27.59	33.41
18	28.87	34.81
19	30.14	36.19
20	31.41	37.57
21	32.67	38.93
22	33.92	40.29
23	35.17	41.64
24	36.42	42.98
25	37.65	44.31
26	38.89	45.64
27	40.11	46.96
28	41.34	48.28
29	42.56	49.59
30	43.77	50.89

	p	
35	49.80	57.34
40	55.76	63.69
45	61.66	69.96
50	67.50	76.15
60	79.08	88.38
70	90.53	100.43
80	101.88	112.33
90	113.15	124.12
100	124.34	135.81
200	233.99	249.45
300	341.40	359.91
400	447.63	468.72
500	553.13	576.49
600	658.09	683.52
700	762.66	789.97
800	866.91	895.98
900	970.90	1001.63
1000	1074.68	1106.97