CHAPTER 5

QUALITATIVE METHODOLOGY

5.1   INTRODUCTION

An international as well as a national literature search on the concepts of air transport deregulation and liberalisation, the YD and aviation policy in relation to Africa and South Africa was undertaken and comprehensively discussed in Chapters 1 to 4.

In the first chapter, a number of research objectives were formulated for this study: to examine liberalisation of air services in Africa with particular reference to the YD; to review developments in the South African aviation policy overall and also with particular reference to Africa; to identify factors that have influenced liberalisation of air services between South Africa and its African bilateral air partners over the selected time period; and to test the simultaneous impact of the South African aviation policy in Africa as well as the key influencing factors on air passenger traffic flows between 2000 and 2010. In particular, to measure the overall impact of the South African aviation policy in Africa and in each of the four regions as well as the impact of its individual provisions. Objectives 1 and 2 were achieved in Chapters 1 to 4.

This chapter aims to provide guidelines for attaining the remainder of the specified objectives. To achieve this, a mixed methods approach is followed which implies the use of both the quantitative and qualitative forms. The aim is to attain the following research objectives:

- **To identify factors that have influenced liberalisation of air services between South Africa and its African bilateral air partners over the selected time period;**

- **To test the simultaneous impact of the South African aviation policy in Africa as well as the key influencing factors on air passenger traffic flows between 2000 and 2010. In particular, to measure the overall impact of the South African aviation policy in Africa and in each of the four regions as well as the impact of its individual provisions.**

As was established through a literature review, the impact of an aviation policy on air passenger traffic flows could not be tested in isolation as a multitude of other factors could have had an impact on these flows. Variations in these factors could mean that apparently identical air policy measures could have disparate effects on air passenger traffic flows (Warnock-Smith & O'Connell, 2011).

To ensure that the most significant and imperative factors impacting on air passenger traffic flows have been identified, the study employs a two-round Delphi technique in its qualitative phase. The purpose is to determine the opinions of aviation experts, in academia as well as the public and private sectors, on the features of BASAs and those not related to BASAs that they view as having an influence on air passenger traffic flows between country-pairs in relation to Africa. A list of the experts who participated in the Delphi process can be found in Appendix H. This approach is essential to ensure that factors that are unique to the region from an industry perspective have also been identified.

The quantitative phase of data collection and analysis utilises a fixed one-way panel regression technique which is applied to a panel data set of 45 countries covering the 11 year time period from 2000 to 2010. The aim is two-fold: firstly, to estimate and statistically quantify the impact of key influencing factors, one of which is an aviation policy on air passenger traffic flows with specific reference to South African aviation policy in Africa; and secondly, to identify which specific provisions of the aviation policy have the most significant impact.

The qualitative results generated an extensive list of factors that influence air passenger traffic flows between African country-pairs. These factors were subsequently plotted under factor categories that were identified from the literature in order to create a conceptual framework for the relevant BASA and non-BASA factors. The ten main factor categories that were established are: 1) *government responsibility*, which was further subcategorised into *aviation policy* and *all others*; 2) *external economic factors*; 3) *external political factors*; 4) *supply*; 5) *intangible factors*; 6) *demand*; 7) *socio-economic* and *geographic factors*; 8) *geo-economic factors*; 9) *external health factors;* and 10) *force majeure*. Given the importance of the aviation policy in this research, the aviation policy subcategory was further subdivided into a) *air services agreements' features* and b) *others*. The results of the Delphi technique (hereafter the Delphi) were essential in bridging the gap between the literature review and the quantitative research.

The next step was to determine all the factors impacting on air passenger traffic flows that had been statistically measured and quantified in the existing secondary research. The subsequent step was to assess all the factors identified through the Delphi and secondary literature, the majority of which were intertwined and interlinked, in relation to their consistent and reliable data availability and the ability of the empirical model to statistically quantify and measure these factors over the 11 year time period in the African context. This step filtered the independent factors or predictors and narrowed them down to 12 in total, which are discussed more comprehensively in Chapter 6.

The quantitative results provide a comprehensive overview of the degree of liberalisation of the respective BASAs, as measured by the four variants of the Air Liberalisation Index (ALI), namely, *STD*, *5th+*, *DES+* and *OWN+,* at any point in time over the selected 11 year time period in the five markets: intra-African; the SADC; West African; East African and North African. In these markets, where the impact of the aviation policy was found to be significant, individual provisions were tested for their impact on air passenger traffic over two time periods: 2000 – 2010 and 2006 – 2010. The results of this research effectively fill the gap in the existing literature, thereby providing further empirical evidence of the liberalisation of the air services in the South African-African context by

using a panel data technique instead of the cross-sectional approach. The selected quantitative technique caters for the change in dynamics of several units under observation over a period of time. In the instance of aviation policy this is a very important aspect to factor in, as the amount of time needed for a market to respond to changes in the underlying regulatory approach could range from a few months to several decades (Inter*VISTAS*-ga[2] Consulting, Inc., 2006:62).

This chapter focuses on the qualitative research undertaken in the study by explaining the Delphi technique and its application. The chapter concludes with an explanation of how this data was analysed and presents the results in the form of a conceptual framework of factors that are viewed by the experts as having an influence on air passenger traffic flows.

5.2   QUALITATIVE RESEARCH

5.2.1   Introduction

Qualitative research significantly differs from quantitative research. Van Maanen, Dabbs and Faulkner (1982:32) clearly differentiate the two research designs: "Quality is the essential character or nature of something; whereas, quantity is the amount. Quality is the 'what' and quantity is the 'how much'. Qualitative refers to the meaning, the definition or analogy or model or metaphor characterising something, while quantitative assumes the meaning and refers to a measure of it."

In this study, the Delphi technique, which according to Linstone and Turoff (2002) is a series of sequential questionnaires or "rounds" interspersed by controlled feedback that seek to gain the most reliable consensus of opinion in a group of experts, was utilised to collect and analyse qualitative data from the panel of aviation industry experts; this was purposively selected based on exact criteria such as their specific knowledge and expertise on the subject as well as their respective positions in their selected organisations. It must be noted that the type of information required from aviation experts

could only be obtained through a qualitative research technique which allowed for the gathering of detailed and in-depth information on a specified topic. Another factor that led to the use of this technique was that only a limited number of experts in South Africa, Africa and internationally could give valid opinions on the chosen subject. This was further constrained by a time limitation, distance and other factors that made it difficult for the panel of experts to work together in the same physical location. In addition, many communication barriers could be overcome with the Delphi due to the confidentiality of the individual respondents' opinions. Some of these barriers are: reluctance to voice unpopular views, to disagree with one's associates, or to modify previously stated positions (Barnes in Yousuf, 2007:4). In this way, the heterogeneity of the participants (Linstone & Turoff, 2002) is preserved, which assures the validity of the results, that is, the avoidance of domination by quantity or by strength of personality ("bandwagon effect"). The heterogeneity of responses was important to ensure that the results of the Delphi reflect a multitude of views on different factors that were viewed as having an impact on air passenger traffic flows.

5.2.2 The Delphi method

5.2.2.1 Background and areas of application

The Delphi method was developed during the 1950s by workers at the RAND Corporation, the objective being to forecast future events and possible outcomes based on inputs and circumstances. The earliest use of the Delphi was primarily military (Hsu & Sandford, 2007:1). Slightly later, the technique was described as a procedure to "obtain the most reliable consensus of opinion of a group of experts … by a series of intensive questionnaires interspersed with controlled opinion feedback" (Dalkey & Helmer, 1963:458). The Delphi is not intended to challenge statistical or model-based procedures against which human judgement is generally known to be inferior, but it is, rather, intended for use in judgement and forecasting situations in which pure model-based statistical methods are not practical or possible because of a lack of appropriate

historical, economic or technical data, and thus where some form of human judgmental input is necessary (Rowe & Wright, 1999:354).

Linstone and Turoff (2002:4) state that besides its traditional application as a forecasting technique, the Delphi has been applied in the following areas:

- Gathering current and historical data not accurately known or available;

- Examining the significance of historical events;

- Evaluating possible budget allocations;

- Exploring urban and regional planning options;

- Planning university campus and curriculum development;

- Putting together the structure of a model;

- Delineating the pros and cons associated with potential policy options;

- Developing causal relationships in complex economic or social phenomena;

- Distinguishing and clarifying real and perceived human motivations;

- Exposing priorities of personal values or social goals.

In summary, the Delphi has successfully been used in various fields of study such as nursing research, programme planning, needs assessment, policy determination and resource utilisation. The aims of the Delphi were, among others, to develop a full range of alternatives, explore or expose underlying assumptions, and correlate judgements on topics covering a wide spectrum of disciplines (Hsu & Sandford, 2007:1). As mentioned

earlier, the Delphi was the best tool to gather in-depth information from a panel of aviation experts who were geographically dispersed, without interfering too much with their very busy schedules.

5.2.2.2   Characteristics of the Delphi

There are four key features that define and characterise the Delphi. These are anonymity, iteration, controlled feedback and the statistical aggregation of group response (McKenna, 1994; Rowe & Wright, 1999; Hasson, Keeney & McKenna, 2000; Okoli & Pawlowski, 2004; Hsu & Sandford, 2007; Yousuf, 2007). *Anonymity* is achieved through the use of questionnaires or other forms of communication where expressed responses are not identified as being from specific members of the panel (Yousuf, 2007:3). By allowing individual members the opportunity to express their opinions and judgements privately, undue social pressure is avoided. Ideally, this should allow individual group members to consider each idea on the basis of merit alone, rather than on potentially invalid criteria such as the status of the proponent of the idea (Rowe & Wright, 1999:354). This key feature was very relevant to the aim of the Delphi study, which was to gather as many views and opinions as possible of the factors impacting on air passenger traffic flows without being biased by the group's responses. Owing to the *iteration* of the questionnaire over a number of rounds, the individuals were afforded the opportunity to change their opinion and judgement without any pressure from the group. In this study, only two rounds were utilised as further rounds would not have added any value to the study and would only have annoyed aviation experts who were already extremely busy. The *controlled feedback* process consists of a well-organised summary of the preceding iteration which was intentionally distributed to the subjects, according each participant an opportunity to gain additional insight and more thoroughly clarify the information developed by previous iterations (Hsu & Sandford, 2007:2). Responses to the round one questionnaire were consolidated into common themes and topics using the content analysis technique, and were subsequently distributed in round two as part of a more structured questionnaire. *Feedback* is often presented as a simple statistical summary of group responses, usually comprising a mean or median value such as the

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average "group estimate" of the date by when an event is expected to occur (Rowe & Wright, 1999:354). The results of round two are presented in section 5.6.1. These characteristics are designed to offset the shortcomings of the conventional means of pooling opinions obtained from a group interaction, in particular, influences of dominant individuals, noise and group pressure for conformity (Dalkey, 1972).

5.2.2.3   Strengths

Linstone and Turoff (2002:4) argue that the Delphi is beneficial when other methods are not adequate or appropriate for data collection. Dalkey (1972), Helmer (1983), Dawson and Barker (1995) all assert that one of the major advantages of using the Delphi as a group response is that consensus will emerge with one representative opinion being gained from the experts. McKenna (1994:1222) supports this argument by highlighting that the main advantage of the Delphi is the achievement of concurrence in a given area where none previously existed. This tendency to converge towards agreement is a unique aspect of the Delphi (Sackman, 1975; Lyons, 1981). One of its other main advantages, as indicated, is its confidentiality, with which many of the communication barriers could be overcome (Yousuf, 2007:4). In addition, the feedback between rounds could extend knowledge and stimulate new ideas, and in itself be highly educational (Stokes, 1997).

In line with the above discussion and the study's third research objective, the Delphi was selected as the qualitative method for the following reasons:

- The Delphi is flexible in its design and amenable to follow-up interviews. This enables the collection of detailed and in-depth data which leads to a deeper understanding of the fundamental research questions;

- The study required an investigation on expert opinions about BASA- and non BASA-related factors that impact on air passenger traffic flows between country-pairs in relation to Africa. This complex issue required knowledge from people who understand economic, social, political and regulatory issues. As mentioned

previously, only a limited number of experts in South Africa, Africa and internationally could express valid opinions on the chosen subject. Thus, the Delphi was the most suitable technique for information-gathering from aviation experts who were geographically dispersed;

- Delphi does not require the experts to meet physically, which could have been very impractical for international experts. The selected experts were in fact constrained by time, distance and other factors that made it unfeasible for the panel to work together in the same physical location;

- The Delphi panel size requirements are modest, which was an important aspect for the researcher as the number of experts on the subject was relatively limited and even more limited in terms of those who were willing to participate in the research;

- The anonymity characteristic of the Delphi could assist with many of the communication barriers discussed above, and therefore the heterogeneity of participants was preserved;

- Delphi serves the dual purpose of: 1) soliciting opinions from the experts and 2) reaching a level of consensus on these opinions.

While there are several clear advantages of this approach, conducting the Delphi can be very time consuming. This was particularly relevant to the current study as the data collection process took six months, from mid-March to mid-August 2011. As with any method, the duration and cost of a Delphi study is related to the scale of the survey (up to 1 000 items may be addressed), the complexities involved in the processing of the questionnaires and the number of rounds (Powell, 2002:377). These and other limitations of the Delphi are discussed below.

5.2.2.4   Limitations and weaknesses

As with any research method, the Delphi displays several limitations:

- **Consensus -** Mitroff and Turoff (2002) argue that the consensus reached in a Delphi may not be a true consensus, but rather a product of specious or manipulated consensus. As a specious consensus does not contain the best judgment, it is viewed as a compromise position. A manipulated consensus was overcome as the two-round Delphi did not require further consensus on the results reached in round two of the Delphi;

- **The potential of a low response rate** that characterises the final rounds of most Delphi investigations is an important limitation of this method (McKenna, 1994:1224). Mason and Alamdari (2007:306) concluded that in studies where the panel was closely concerned with the subject, a very high rate of response was achieved. On the contrary, in studies where the experts were drawn from a larger group and the interest in the findings of the report was less directly related to the experts, the response rate was unsurprisingly lower. In this study the experts were selected based on their subject knowledge. In addition, to increase the response rate in each of the two rounds, the researcher sent follow-up emails after the deadline, which resulted in several of the respondents requesting an extension, thereby highlighting their interest in the research. The response rate in both rounds was also high, which is elaborated on in more detail in section 5.3.2 below;

- **Consumption of large blocks of time -** The Delphi can be very time-consuming and laborious, as mentioned above. The entire process can take 30 to 45 days to complete (Barnes in Yousuf, 2007). The iteration characteristics of the Delphi provide opportunities for investigators and subjects to improve the accuracy of their results. At the same time, these characteristics increase the workload of investigators and the amount of time needed to successfully complete the data collection process (Cunliffe, 2002). Computer-based elicitation of answers,

particularly where experts are geographically dispersed, could reduce the time taken to collect the responses. However, persuading experts in their field to spend time completing repeated rounds of surveys could be difficult and sometimes impractical (Mason & Alamdari, 2007:305). This particular limitation was considered by the researcher given the nature of the expert panel which was geographically dispersed and had extremely busy work schedules. The experts were notified that for the purposes of this research only two rounds of the Delphi would be conducted, both of which were via email;

- **Accountability -** Sackman (1975) argues that anonymity in the Delphi surveys could lead to a lack of accountability for the views expressed, while Goodman (1987) maintains that it encourages hasty ill-considered judgements. Rauch (1979), on the other hand, inclines towards "quasi-anonymity" which implies that the respondents may be known to one another, but their judgements and opinions remain strictly anonymous. Knowing who the other subjects are should have the effect of motivating the panellists to participate. Powell (2002:378) argues that this limitation is not unique to the Delphi but could be applicable to any anonymous postal questionnaire. In this study, several respondents from the same organisation were known to each other, in particular those from the South African Department of Transport and Qatar Airways.
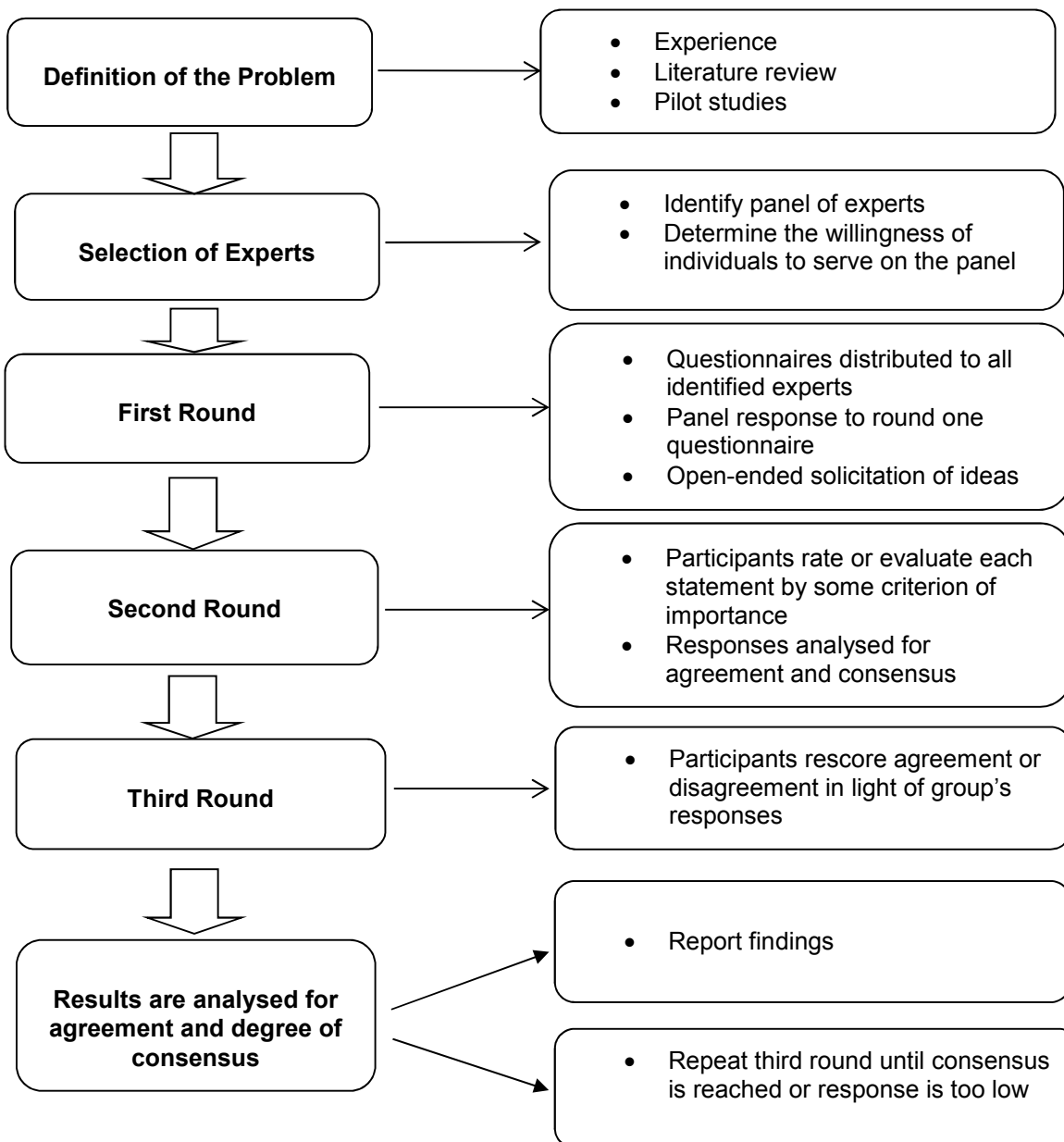
Based on the literature research, one could conclude that there are many different views on what the "proper", "appropriate", "best" and/or "useful" procedures for accomplishing various aspects of the Delphi technique are (Rowe & Wright, 1999; Hsu & Sandford, 2007). The classical Delphi process is briefly discussed in the subsequent section followed by a discussion of this study's expert panel.

5.2.2.5   Classical Delphi process

The first round of the classical Delphi procedure is unstructured, which allows the individual experts relatively free scope to identify and elaborate on those issues that they

deemed important (Martino, 1983). These individual factors are subsequently consolidated into a single set by the monitor team, who then produce a structured questionnaire from which the views, opinions and judgments of the Delphi panellists may be elicited in a quantitative approach during subsequent rounds. After each of these rounds, responses are analysed and statistically summarised (usually into medians as well as upper and lower quartiles) and subsequently presented to the panellists for further consideration. This procedure continues until definite stability is achieved in panellists (Rowe & Wright, 1999:354). In essence, the Delphi is a multi-stage approach, with each stage building on the results of the previous one (McKenna, 1994:1221). However, it should be noted, that there are variations to the classical Delphi. A newer approach is based on an extensive review of the literature (Hsu & Sandford, 2007:2). Figure 5.1 depicts the steps involved in the Delphi method; compiled from and based on a comprehensive secondary literature review.

Figure 5.1: Steps in the Delphi method

Definition of the Problem
- Experience
- Literature review
- Pilot studies

Selection of Experts
- Identify panel of experts
- Determine the willingness of individuals to serve on the panel

First Round
- Questionnaires distributed to all identified experts
- Panel response to round one questionnaire
- Open-ended solicitation of ideas

Second Round
- Participants rate or evaluate each statement by some criterion of importance
- Responses analysed for agreement and consensus

Third Round
- Participants rescore agreement or disagreement in light of group's responses

Results are analysed for agreement and degree of consensus
- Report findings
- Repeat third round until consensus is reached or response is too low

Sources: Jones and Hunter (1995); Rowe and Wright (1999); Okoli and Pawlowski (2004); Hsu and Sandford (2007); Yousuf (2007)

5.2.2.6 Expert panel

Selecting research participants is a critical component of the Delphi as its output is based on the opinion and feedback of the experts (Skulmoski, Hartman & Krahn, 2007:3). According to Adler and Ziglio (1996), there are four requirements of "expertise":
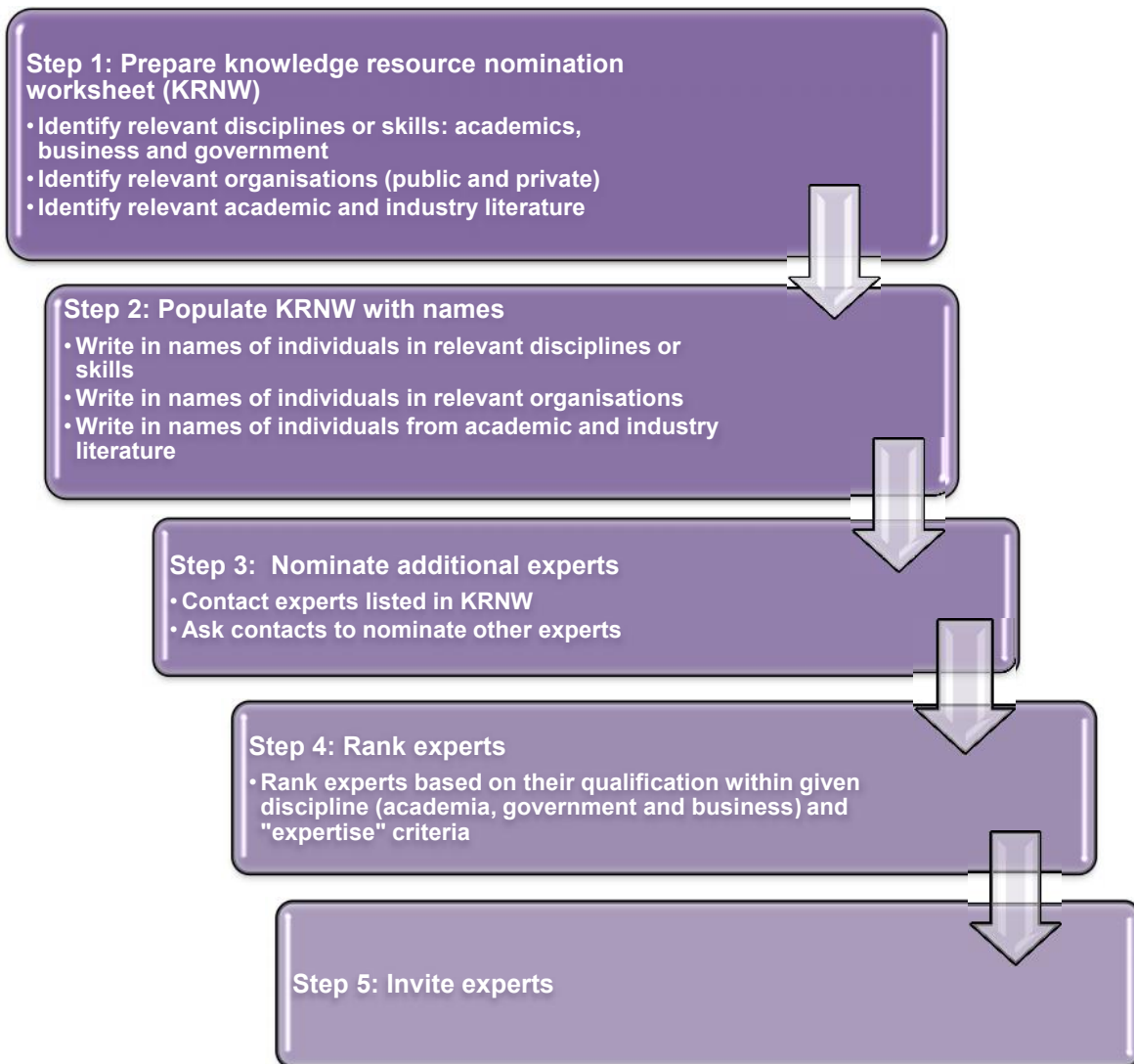
1) knowledge and experience with the issues under investigation; 2) capacity and willingness[45] to participate; 3) sufficient time to participate in the Delphi; and 4) effective communication skills.

This study followed the expert selection procedure of Okoli and Pawlowski (2004), augmented by the four requirements of "expertise" as proposed by Adler and Ziglio (1996). This is illustrated in figure 5.2.

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[45] Although one of the requirements of "expertise", namely the willingness to participate may be argued to lead to bias, the panel selection process had to account for this as the number of aviation experts on the subject matter was limited and even more limited in terms of their willingness to take part in the Delphi.

Figure 5.2: Procedure for selecting the experts in this study

Step 1: Prepare knowledge resource nomination worksheet (KRNW)
- Identify relevant disciplines or skills: academics, business and government
- Identify relevant organisations (public and private)
- Identify relevant academic and industry literature

Step 2: Populate KRNW with names
- Write in names of individuals in relevant disciplines or skills
- Write in names of individuals in relevant organisations
- Write in names of individuals from academic and industry literature

Step 3: Nominate additional experts
- Contact experts listed in KRNW
- Ask contacts to nominate other experts

Step 4: Rank experts
- Rank experts based on their qualification within given discipline (academia, government and business) and "expertise" criteria

Step 5: Invite experts

Sources: Adler and Ziglio (1996); Okoli and Pawlowski (2004)

Steps 1 to 3 generated a nomination list of 82 aviation experts, representing local and international academia as well as public and private sectors, thus ensuring heterogeneity amongst the group. Rowe (in Powell, 2002:379) suggested that experts be drawn from varied backgrounds to ensure a wide knowledge base; Murphy, Black, Lamping, McKee, Sanderson, Askman and Marteau (1998) supported this by concluding that the diversity of the expert panel led to better performance as it allowed for different perspectives and a wider range of alternatives to be considered. In step 4, 55 experts were prioritised based

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on the four requirements of "expertise". In step 5 these experts were approached to participate in the research of which 36 agreed to take part in the Delphi.

From the literature review, it is evident that there is a wide variation in the number of participants that are deemed acceptable to participate in a Delphi. In their study, Rowe and Wright (1999:357-358) summarise a number of Delphi studies where the group size ranged from three to over 100. Witkin and Altschuld (1995) argue that the approximate size of a Delphi panel is generally less than 50, but more members have been employed in some cases. Ludwig (1997:2) on the other hand, documents that the majority of Delphi studies have utilised between 15 and 20 respondents. Clearly, there are no definite guidelines on the number of experts that should be included in a Delphi panel.

Several studies suggest that the number of participants will vary according to the scope of the problem and the resources available (Delbecq, Van de Ven & Gustafson, 1975; Jones, Sanderson & Black, 1992; Hasson *et al.,* 2000). Powell (2002:378) reconfirms that resources in terms of time and money are important and influential; however, an assessment of the magnitude of the problem and the acceptability of the answers are open to interpretation by the researcher and commentator alike.

The impact of the number of respondents has been considered by Boje and Murnighan (1982) and Brockhoff (2002). Neither of these studies found a consistent relationship between the panel size and the effectiveness criteria. Murphy *et al.* (1998:37) concur that there is very little empirical evidence of the effect of the number of participants on the reliability or validity of consensus processes. Thus, the Delphi technique does not call for expert panels to be representative samples for statistical purposes, which is an opinion supported by Rowe and Wright (1999), who stated that representativeness is based on the expertise and knowledge of the expert panel rather than on its size.

The subsequent section describes the two-round Delphi and data collection process applied in this study.

5.3   DATA COLLECTION

5.3.1   Introduction

Data collection techniques may be grouped into two categories: qualitative (collecting data in the form of words or pictures) and quantitative (collecting data in the form of numbers) (Cooper & Schindler, 2003). This study employed both techniques, as indicated. The next section discusses the Delphi process followed in this study, that is, content analysis and the qualitative data analysis technique utilised in the first round of the Delphi. The quantitative data analysis employed in this study is covered in Chapter 6.

5.3.2   The Delphi process in this study

The initial Delphi questionnaire for round one (Appendix I) was pretested using two methods described by Cooper and Schindler (2003:392), namely, researcher pretesting and participant pretesting. The first round questionnaire was pretested with the researcher's study leader to ensure that the open-ended questions were clear and relevant to the research objective. Participant pretesting entailed the questionnaire being field-tested by the sample participants. This was important to ensure the content validity of the questionnaire as well as the unambiguity of the instructions. Three aviation experts pretested the questionnaire; they all confirmed that it was clear and relevant to the research objective and the purpose of the study. The questionnaire that was distributed to the experts as part of the pretesting was identical to the one utilised in the actual Delphi round.

As was mentioned earlier, of the 55 aviation experts who were approached by email to participate in the research, 36 agreed to take part in the Delphi. The panellists were informed that they would be required to complete two rounds of questionnaires, the first of which was included with the email. The panellists were further informed that the time required to complete both rounds would not exceed 30 minutes.

Round one began with an open-ended solicitation of ideas and opinions. The respondents were asked to provide their comprehensive opinions on 1) all features of BASAs that they believed directly or indirectly affected air passenger traffic flows between two countries (any arbitrary country-pair in the context of Africa) and 2) any other factors that they felt directly or indirectly had an influence on air passenger traffic flows between any arbitrary country-pair. Experts were given two weeks to respond to the questionnaire. As a result, 23 responses were received.

Responses to the round one questionnaire were subsequently consolidated into common themes and topics using the content analysis technique. Consolidation of statements through content analysis involved three main steps: 1) listing of respondents' statements; 2) coding of concepts within respondents' statements; and 3) consolidation of concepts. These steps are comprehensively discussed in section 5.6.1 below.

Content analysis is highly recommended by many authors for the analysis of the first round Delphi data and has been applied across various fields (Hasson *et al.,* 2000; Powell, 2002; Douglas, 2008). Such analysis is a detailed and systematic examination of material utilised for the purposes of identifying patterns, themes or biases (Leedy & Ormrod, 2005:142). Mayring (2000) describes qualitative content analysis as an approach to empirical, methodological and controlled analysis of text within the context of communication, which follows content analytical rules and step by step models.

One of the appealing aspects of content analysis is that it recognises the role of the researcher in the construction of the meaning of and in the text (Bryman, 2001). This was an important aspect as the researcher was actively involved with the data collection and analysis. In this study, such an analysis helped to identify and summarise message contents in a systematic manner.

In addition, this type of analysis extends far beyond simple word counts; the reliance of the technique on the coding and categorisation of the data makes it particularly rich and meaningful. It is furthermore unobtrusive in nature and has the ability to reflect trends in

society, which was important for the purpose of this study to ensure that the consolidated concepts based on the round one Delphi reflected the reality of the aviation market in the context of Africa (Stemler, 2001).

A more structured questionnaire for the round two Delphi, found in Appendix I, was constructed using concepts derived from the content analysis technique. Round two involved the new document being distributed to 23 experts, who were asked to agree or disagree with a number of summarised statements from round one. For simplicity's sake, the dichotomous approach was utilised to reach consensus from the experts over two rounds. This could be viewed as a limitation from a Delphi study point of view and the researcher recommends the use of a 5 or 7 point Likert scale for the two-round Delphi studies, so that the strength of the agreement or disagreement of each statement can be measured. However, given that the purpose of the qualitative research was the identification of those factors that were viewed by the experts as having an impact on air passenger traffic flows and would subsequently be assessed for their applicability in the quantitative analysis, the depth of the agreements or disagreements on each of the statements was not of great value. Experts were accorded two weeks to respond to the questionnaire. To increase the response rate in both rounds, the researcher sent out follow-up emails after the deadline, which resulted in several respondents requesting a deadline extension due to their busy work schedules. Seventeen responses were received in round two.

The researcher made a decision not to discard any feedback received from the experts, since their particular views and opinions would have been valid in their respective organisations and in the context of their professional environment. Thus, even if only one of the 17 respondents agreed or disagreed with a certain statement, the researcher included it in the feedback. The Delphi results are presented in section 5.6.

It is evident from the literature that the number of rounds in the Delphi is variable and dependent on the purpose of the research. Delbecq *et al.* (1975) suggest that a two or three iteration Delphi is sufficient for most research. For the purposes of this study, two

rounds were utilised as it was not necessary for respondents to reach further consensus on the factors in consecutive rounds. The response rate was high in both rounds, with a response rate of 64% in round one and 74% in round two. The high response rate could be attributed to the experts' interest on the subject and possibly their motivation to participate in the research.

To summarise, both rounds utilised self-completion questionnaires that were distributed via email. Experts were allowed two weeks to respond to the questionnaire in each of the rounds. Qualitative data was collected from mid-March to mid-August 2011 using the Delphi. No incentives were provided to the respondents for completing the questionnaires.

5.3.3   Validity and reliability of content analysis in the Delphi technique

In relation to qualitative research, reliability indicates that the researcher's approach is consistent across different research and projects (Creswell, 2009:190). Reliability may be discussed in terms of *inter-coder* and *intra-coder reliability* (Stemler, 2001).

Inter-coder reliability or reproducibility refers to the levels of agreement among independent coders who code the same content using the same coding instrument. If the results fail to achieve reliability, it implies that something is amiss with the coders, the coding instructions, the category definitions, the unit of analysis, or some combination of these (Wimmer & Dominick, 2003:156). In this study, the researcher was the only coder of the concepts and therefore there was no confusion regarding coding instructions, category definitions or units of analysis.

The researcher conducted a comprehensive literature review in order to gain an understanding of the topic under investigation, and based on that she defined the categories and units of analysis for this study. It is reasonable to argue that the researcher possessed an adequate understanding of the concepts investigated and has accurately analysed and coded the statements.

Intra-coder reliability or stability refers to the level of replication that could be expected if similar studies were undertaken, basically answering the question: "Can the same coder obtain the same results try after try?" The procedure could therefore be repeated and similar groupings of statements into themes or concepts could be expected (Stemler, 2001). As mentioned earlier, the coder followed a three-step approach in grouping, coding and consolidating statements that were generated in round one of the Delphi into concepts that were utilised in constructing the second questionnaire. The three-step approach is discussed in detail in section 5.6.1.

Considering the above it is concluded that the qualitative instrument in this study was reliable.

In qualitative research, validity does not carry the same connotations as in quantitative research. Qualitative validity means that the researcher validates the accuracy of the findings by employing certain procedures. Validity is one of the strengths of qualitative research and it is based on determining whether the findings are accurate from the perspective of the researcher, the participant or the readers of an account (Creswell, 2009:190-191). The validity of findings or data is referred to as the "correctness" or "precision" of a research reading and is often explained as a concept with two distinct dimensions: internal and external validity (Ritchie & Lewis, 2011:272).

Internal validity is the ability of the research instrument to measure what it is purported to measure whereas *external validity* refers to the data's ability to be generalised across persons, settings and times (Cooper & Schindler, 2003:231). Factors that threaten the internal and external validity of a research design are influenced by the time dimension of a study which could either be cross-sectional or longitudinal (Du Plooy, 2002:84-85). The qualitative research of this study followed a cross-sectional approach.

In a cross-sectional design, a number of factors contribute to internal validity, namely, constructing reliable measuring instruments, drawing random samples, the unconstructiveness of the measuring instrument and/or the researcher's behaviour so

that neither the measurement nor the researcher disrupts, directs or intrudes on what is being researched, and the effectiveness of manipulating the independent variables to ensure that it produces an effect on the dependent variable (Du Plooy, 2002:84-85). The researcher carefully coded the concepts and took all reasonable precautions to ensure that the correct statements were entered. The consolidated concepts were then cross-checked by her study leader.

Factors that contribute to the external validity of a cross-sectional design include drawing a representative sample from the population, conducting research in real-world settings and avoiding inference factors such as fatigue (Du Plooy, 2002:84-85).

In the context of the Delphi studies, as already noted the use of participants who are knowledgeable and have an interest in the topic may help to increase the content validity of the Delphi (Goodman, 1987) while the use of successive rounds of the questionnaire helps to increase concurrent validity. It is important to note that the validity of the Delphi results will ultimately be affected by the response rates (Hasson *et al.,* 2000:1012). As previously reported, the response rates for both rounds of the Delphi were high: 64% in round one and 74% in round two. A two-round Delphi was followed in order to avoid respondent fatigue. The research was conducted in authentic environment conditions, which allowed the respondents to take part in the research without leaving their usual place of work.

In line with the above discussion the requirements for external validity were met and all reasonable precautions were taken by the researcher when coding and analysing the data. As the qualitative instrument was considered to be both internally and externally valid and was regarded as being reliable, one could conclude that it had attained validity.

5.4   QUALITATIVE DATA ANALYSIS

Qualitative "raw" data come in various forms but most commonly comprise verbatim transcripts of interviews or discussions, observational notes or written documents. As

regards qualitative data, a researcher has many options on how to change the "raw" data into final patterns of meanings. In most analytical approaches, data management initially involves deciding on the themes or concepts under which the data will be labelled, sorted and compared (Ritchie, Spencer & O'Connor, 2011:221). Due to the methodological frame of inquiry and in line with the aims of the analysis procedure, the Delphi, qualitative coding and categorisation were employed in this study. The data were separated into small units of meaning, which were subsequently methodically "named" per unit and then grouped together in categories that contained related codes. Each category therefore included codes that were semantically related (Henning, Van Rensburg & Smit, 2004). In this research, qualitative content analysis was utilised in round one of the Delphi to analyse the data as it was applied to factors that were identified as having an impact on air passenger traffic flows. The consolidated concepts were subsequently plotted into a conceptual framework, depicted in table 5.4 in section 5.6.1, to establish how the results fit into the context of the existing literature on air transport.

5.5   ETHICAL CONSIDERATIONS

Thirty-six aviation experts voluntarily agreed to participate in the Delphi and were informed that the research was conducted for academic purposes only; the outcome of which was the attainment of a doctoral degree and the publishing of articles in accredited scientific journals. The data collection approach was also approved by the Ethics Research Committee of the Faculty of Economic and Management Sciences at the University of Pretoria.

5.6   DELPHI RESULTS

In the following section, the actual findings resulting from the qualitative two-round Delphi research are reported and discussed. The objective is to explain the Delphi results and to identify various factors which impact on air passenger traffic flows. The research also endeavours to put these factors into the context of existing literature to determine where each one of them fits with regard to identified factor categories in relation to factors

impacting on air passenger traffic flows. The results guided the selection of independent variables for the quantitative research which is discussed in Chapter 6.

5.6.1 Results from the qualitative Delphi

The aim of the first round was to generate a comprehensive list consisting of two main themes: the features of BASAs, and the factors unrelated to BASAs that impact on air passenger traffic flows between an arbitrary African country-pair. To maximise the chances of identifying the most important ones, the respondents were encouraged to submit as many ideas and thoughts as possible. A round one question posed to the experts read: "Please provide your opinion as comprehensively as possible of all those features of bilateral air services agreements that you believe directly or indirectly affect air passenger traffic flows between two countries (any arbitrary country-pair)" and "Please list any other factors that you feel directly or indirectly have an influence on air passenger traffic flows between an arbitrary country-pair". This questionnaire can be found in Appendix I. The respondents were reminded to provide their thoughts and opinions in relation to Africa in line with the research objective. As stated previously, 23 responses were received in round one.

STEP 1: Listing of respondents' statements from round 1

Following the classic Delphi approach, no statements were excluded from the list and respondents' comments were provided verbatim (Hasson *et al.,* 2000:1012). The experts' statements were listed in no specific order or rank. Examples are found in table 5.1 below.

Table 5.1: Examples of listing of expert statements, derived in round 1

Features of BASAs	Other factors (non-related to BASAs)
A protectionist stance where a government puts the strategic interests of their national airline ahead of other industries and the private sector, usually resulting in very restrictive ASAs which inhibit the creation of new jobs, bilateral trade, etc.	Having a very liberal aviation policy between two countries is very important for profitable airlines to realise the true value of city pairs
A code-sharing agreement helps to overcome regulatory barriers, related to airports, traffic rights, problems caused by constrained capacity. In some circumstances a code-sharing agreement is the only way of entering a new market, creating a new service or increasing competitiveness vis-a- vis the incumbent. On the other hand code-sharing agreements between direct competitors on a fully liberalised market might raise competition concerns. Often used to increase route network without the cost of running a full service.	Social and economic factors, i.e. religion
Freedoms (traffic rights)	Visa requirements
Designating a limited number or even a single carrier which is permitted to operate services between two countries could affect air passenger traffic for a number of reasons, including: abuse of monopoly power in setting fares lower than demand; disincentivising passengers from travelling due to the designation of an airline with poor actual or perceived levels of service/safety; designating a carrier that can offer either very large or only very small levels of capacity.	Geopolitical issues, natural crises, civil unrest, etc. in one country may have an artificial downward effect on ordinarily good demand for travel to that country from another.

Source: Results of the first round of the Delphi

Where respondents submitted a paragraph, individual statements were further identified, separated and listed.

STEP 2: Coding of concepts within respondents' statements

A numerical code (not a value) as seen in the example provided in table 5.2 was subsequently attached to each concept.

Table 5.2: Examples of assigning a numerical code to statements

Features of BASAs - statements	Concept – Numerical code
A protectionist stance where a government puts the strategic interests of their national airline ahead of other industries and the private sector, usually resulting in very restrictive ASAs which inhibit the creation of new jobs, bilateral trade, etc (1).	1 = Protection of national carrier through restrictive agreements
A code-sharing agreement helps to overcome regulatory barriers, related to airports, traffic rights, problems caused by constrained capacity (2). In some circumstances a code-sharing agreement is the only way of entering a new market, creating a new service or increasing competitiveness vis-a-vis the incumbent (2). On the other hand code-sharing agreements between direct competitors on a fully liberalised market might raise competition concerns. Often used to increase route network without the cost of running a full service (2)	2 = Cooperative arrangement clause
Freedoms, i.e. traffic rights (3)	3 = Traffic rights/freedom clause
Designating a limited number or even a single carrier which is permitted to operate services between two countries could affect air passenger traffic for a number of reasons, including (4): abuse of monopoly power in setting fares lower than demand; disincentivising passengers from travelling due to the designation of an airline with poor actual or perceived levels of service/safety; designating a carrier that can offer either very large or only very small levels of capacity (5)	4 = Permitted number of airline designations/designation clause 5 = Capacity clause

Non-BASA related factors - statements	Concept – Numerical code
Having a very liberal aviation policy between two countries is very important for profitable airlines to realise the true value of city pairs (1)	1 = Aviation policy
Historical ties (2)	2 = Cultural affinities/historical relations between countries
Visa requirements (3)	3 = Existence of visa requirements and/or passport regulations
Geopolitical issues: natural crises (4), civil unrest (5), etc. in one country may have an artificial downward effect on ordinarily good demand for travel to that country from another	4 = Natural disasters 5 = Political situation in the country

Source: Results of the first round of the Delphi

STEP 3: Consolidation of concepts

All identified concepts were consolidated into a new document. This listed 25 statements for features of BASAs and 48 statements representing factors that were non-related to BASAs. As part of the second round, the document was distributed to the same respondents who had participated in round one. As noted, 23 aviation experts were requested to either agree or disagree with a number of statements pertaining to the features of BASAs and other factors that may influence air passenger traffic flows. Seventeen responses were received.

The results of the document distributed in round two are summarised in table 5.3 below. The fourth column in the table shows which items from the Delphi study were incorporated into the empirical model for the quantitative analysis. The decision on whether to incorporate or discard any of the items was based on a literature review of gravity-models pertaining to the aviation industry, the availability of consistent and reliable data over the research period, and the ability of the empirical model to statistically quantify and measure an item over the 11 year time period. The justifications for the selection of the independent variables are discussed in more detail in Chapter 6.

Table 5.3: Results of round two of the Delphi

I believe that the following features of bilateral air service agreements directly or indirectly affect air passenger traffic flows between any arbitrary country-pair (Answer sheet 1, Appendix I).	Agree	Disagree	Consensus %	Measured in the quantitative analysis
Capacity clause	16	1	94%	Yes, ALI
Permitted number of airline designation/designation clause	17	0	100%	Yes, ALI
Withholding/ownership clause	12	5	71%	Yes, ALI
Traffic rights/freedom clause	17	0	100%	Yes, ALI
Market access/Named points clause	16	1	94%	Yes, ALI
Tariff/Pricing regime clause	14	3	82%	Yes, ALI
Cooperative arrangements clause	15	2	88%	Yes, ALI
Statistical exchange clause	13	4	77%	Yes, ALI
Double taxation clause	9	8	53%	
Airport slot availability	14	3	82%	

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I believe that the following features of bilateral air service agreements directly or indirectly affect air passenger traffic flows between any arbitrary country-pair (Answer sheet 1, Appendix I).	Agree	Disagree	Consensus %	Measured in the quantitative analysis
Strength of national/designated carrier	14	3	82%	
Protection of national carrier through restrictive agreements	17	0	100%	
Break of gauge provision	8	9	47%	
Unstable political situation	14	3	82%	
Degree of lobbying for increased bilateral agreements by the relevant parties in the country	15	2	88%	
State of diplomatic relations between countries	10	7	59%	
Lack or regional/common aviation market with harmonised rules	11	6	65%	
Lack of reciprocity or equal exchange of rights to airlines in each state	15	2	88%	
Propensity to declare disputes and to make use of dispute resolution provisions and ICAO in settling disputes	10	7	59%	
Free riders: • Access by non-designated airlines to BASA rights • 5th and 7th freedom rights where 3rd and 4th freedom rights do not exist • 5th and 7th freedom rights where 3rd and 4th rights exist	15	2	88%	
Development of 6th freedom carriage by intermediate based African airlines	16	1	94%	
Development of 6th freedom carriage by intermediate based airlines in the Gulf and Europe	13	4	77%	
Lack of updated treaties on inter-state level as opposed to MOUs on aeronautical authority level	9	8	53%	
Lack of implementation/adherence to agreed conditions by African states	15	2	88%	
National aviation policies	16	1	94%	
I believe that the following factors directly or indirectly influence air passenger traffic flows between any arbitrary country-pair (Answer sheet 2, Appendix I).	Agree	Disagree	Consensus %	Measured in quantitative analysis
Existence or lack of free trade areas (free over border movement of passengers)	16	1	94%	
Business/trade relations between two countries	17	0	100%	Yes, flows of services
Existence of visa requirements and/or	16	1	94%	

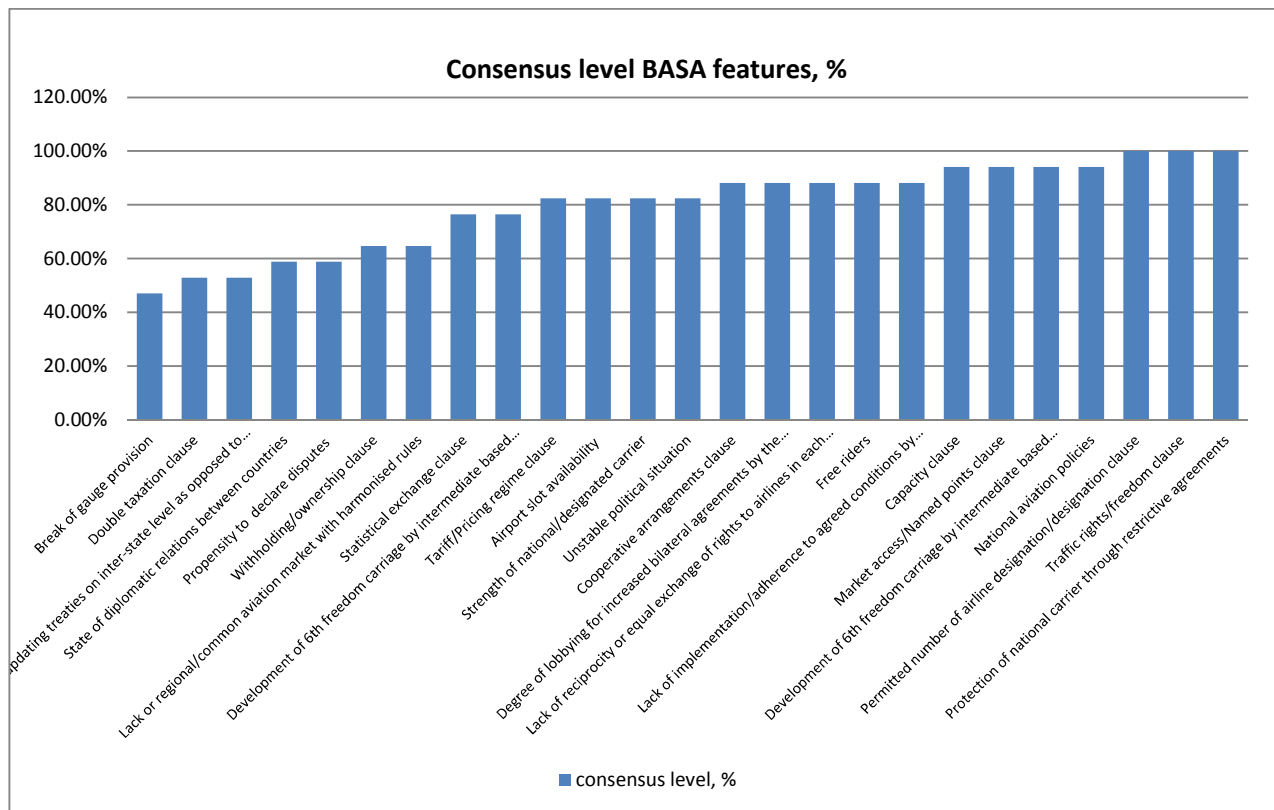| I believe that the following features of bilateral air service agreements directly or indirectly affect air passenger traffic flows between any arbitrary country-pair (Answer sheet 1, Appendix I).	Agree	Disagree	Consensus %	Measured in the quantitative analysis
passport regulations				
Scope of competing airlines (reflects aggregate capacity, frequencies, number of city-pairs served, number of airlines offering competitive services)	16	1	94%	
Capitalisation levels of competing airlines	11	6	65%	
National geographic limitation of competition authorities (laws)	14	3	82%	
Existence of precompetitive regulatory frameworks relating to subsidies and predatory conduct of airlines	12	5	71%	
Standards of safety and operational oversight	13	4	77%	
Requirements for local registration of aircraft	11	6	65%	
Concerns for personal safety/fear of crime	14	3	82%	
Disparity in noise and carbon emission requirements	6	11	55%	
Cultural affinities/historical relations between countries	15	2	88%	Yes, colony variable
Level of labour (countries with excess deficient labour capabilities will likely import/export labour)	10	7	59%	
Special events (for example, significant sporting event)	15	2	88%	
International investment by countries in other countries	16	1	94%	
Affordability of air travel/price	17	0	100%	
Language difference	11	6	65%	Yes, language variable
Distance between countries	11	6	65%	Yes, distance variable
Level of aviation-related infrastructure in a country	15	2	88%	
GDP/state of economy in the country	11	6	65%	Yes, GDP variable
Infrastructure development	15	2	88%	
Capacity (as implemented by the airlines)	17	0	100%	
Aviation policy	15	2	88%	Yes, ALI
Political situation in the country	15	2	88%	
Exchange rates (impacts on relative price levels)	14	3	82%	
Personal financial ability to travel	16	1	94%	
Tourism-related demand/touristic attractiveness	16	1	94%	

| I believe that the following features of bilateral air service agreements directly or indirectly affect air passenger traffic flows between any arbitrary country-pair (Answer sheet 1, Appendix I).	Agree	Disagree	Consensus %	Measured in the quantitative analysis
State of diplomatic relations/foreign policy	10	7	59%	
World economic situation (for example recession)	17	0	100%	
External health factors (such as SARS)	17	0	100%	
Natural disasters	16	1	94%	
Alignment of aviation policy and tourism policy	14	3	82%	
Tax incentives	10	7	59%	
Labour law	6	11	55%	
Availability of other modes of transport	15	2	88%	
Economic policy (interest rates, anti-inflation policies, exchange rate controls, impact of indirect taxation)	16	1	94%	
Reputation/image of the country	14	3	82%	
Existence of a national carrier	10	7	59%	
Population size	13	4	77%	Yes, population
Ease of obtaining permission to exercise the rights granted in terms of BASA	15	2	88%	
Airport slot availability (for example, when not in BASA such as UK)	15	2	88%	
Weather	11	6	65%	
Anti-trust immunity for airline alliances and joint ventures	14	3	82%	
Distribution of income/income inequality	11	6	65%	
Degree of urbanisation/share of urban population	13	4	77%	
Size of conurbation and catchment area of airports in origin and destination	12	5	71%	
Excessive reliance on YD as instrument for liberalisation and the selective and limited adoption of its provisions	11	6	65%	
Lack of African regional agreement to the level of airline participation in competition to internationally and SA-based airlines	13	4	77%	

Source: Results of the second round of the Delphi

Figure 5.3 visually depicts the consensus levels reached on each of the 25 statements pertaining to the features and factors of BASAs. The consensus results, pertaining to BASA factors (answer sheet 1) and generated in round two, indicate that 20% (five items) of the statements fall within the 40 to 60% level of the consensus range, with 16% (four items) falling into the 61 to 80% level of consensus range and 64% (16 items) falling into

the 81 to 100% range. The most frequently occurring level of consensus which is measured by the mode is 88%, with the median being 82% and a mean of 80%. "*Break of gauge provision*" was the only item which reached a consensus level below the threshold level of 51%. Three statements reached a 100% level of consensus: "*permitted number of designations/designation clause*", "*traffic rights/freedom clause*" and "*protection of national carrier through restrictive agreements*".

Figure 5.3: Consensus level for BASA features

Figure 5.4 visually depicts consensus levels on each of the 48 respective statements. The consensus results, pertaining to non-BASA related factors (answer sheet 2) and generated in round two, indicate that 13% (six items) of the statements fall within the 40 to 60% level of consensus range, with 29% (14 items) falling into the 61 to 80% level of consensus range and 58% (28 items) falling into the 81 to 100% range. The most frequently occurring level of consensus which is measured by the mode is 88%, with the

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median being 82% and a mean of 80%. "*Disparity in noise and carbon emission requirements*" and "labour law" were the two statements that reached the lowest level of consensus at 55%.

Five statements representing non-related BASA factors that have an impact on air passenger traffic flows between a country-pair reached a 100% level of consensus: "*business/trade relations between two countries*", "*affordability of air travel/price*", "*capacity (as implemented by the airlines)*", "*world economic situation*" and "*external health factors*".

Figure 5.4: Consensus level for non-related BASA factors
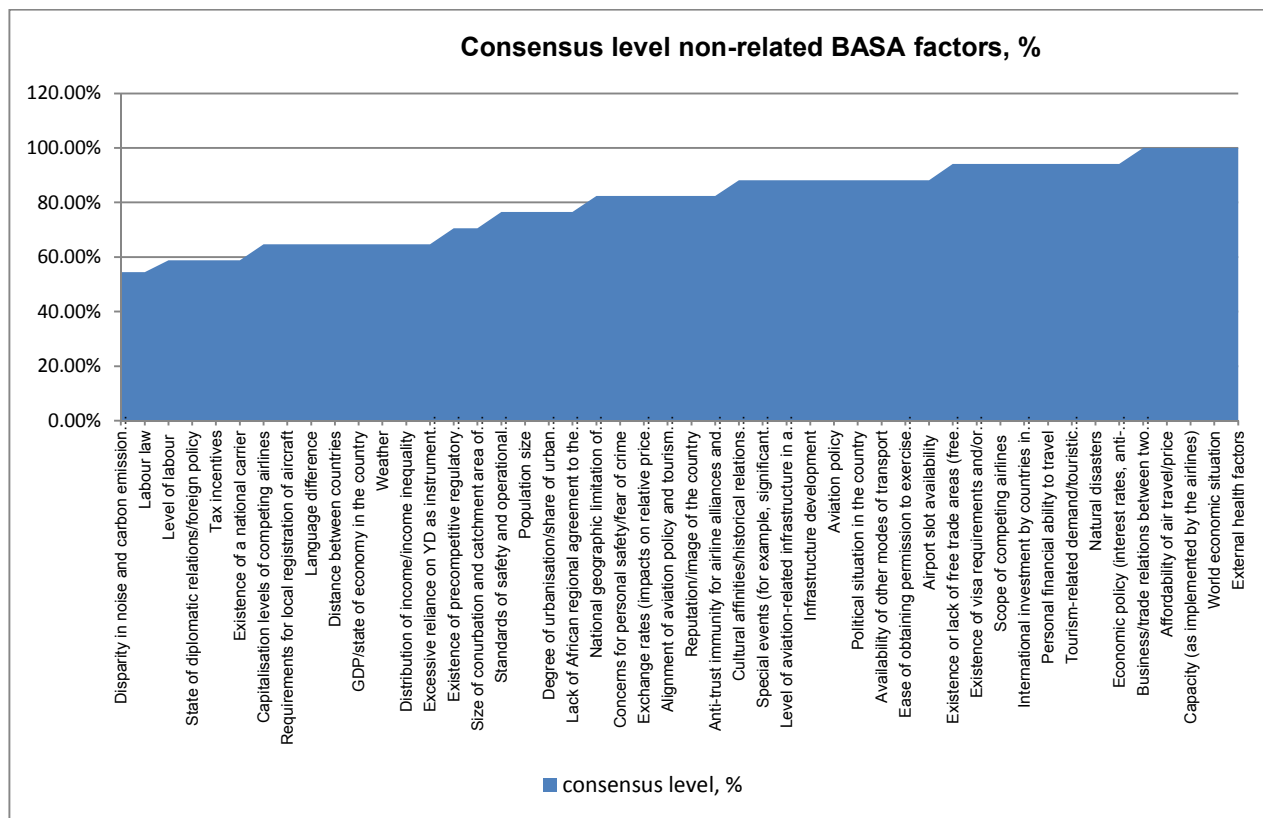
The threshold of an acceptable level of consensus varies in the literature and a universally agreed proportion does not exist for the Delphi as the level utilised depends on the sample numbers, aim of the research and resources (Hasson *et al.,* 2000).

Loughlin and Moore (1979) and McKenna (1994) suggested that consensus should be equated with 51% agreement among respondents. In their study, Park, Kim, Seo and Shin (2011) and Mason and Alamdari (2007) adopt a 75% agreement level. On the other hand, Scheibe, Skutsch and Schofer (2002) argue that the use of percentage measures is inadequate and suggest that a more reliable alternative is to measure the stability of subjects' responses in successive iterations. Given the fact that the purpose of the Delphi in this study was to identify as many factors as possible that impact on air passenger traffic flows between an arbitrary African country-pair, the researcher made a decision not to exclude any items from the results summary. It was decided in line with the above that a 51% consensus was an acceptable level for this study. "*Break of gauge*" was the only item that did not meet an acceptable level of consensus.

STEP 4: Develop a conceptual framework of factors, impacting on air passenger traffic flows

A comprehensive secondary literature review on factors, impacting on demand for air travel and in particular air passenger traffic flows was conducted in order to establish how the Delphi results would fit into the existing framework of research. Main categories for factors were identified and the Delphi results were plotted under each particular category as presented in table 5.4 below. The ten main factor categories identified were: 1) *government responsibility*, which was further subcategorised into *aviation policy* and *all others*; 2) *external economic factors*; 3) *external political factors*; 4) *supply*; 5) *intangible factors*; 6) *demand*; 7) *socio-economic* and *geographic factors*; 8) *geo-economic factors*; 9) *external health factors;* and 10) *force majeure*. Given the importance of the aviation policy in this research, the aviation policy subcategory was further subdivided into a) *air services agreements features* and b) *others.*

Table 5.4: Factors impacting air passenger traffic flows in the context of the Delphi

Government responsibility				External economic factors	External political factors	Supply	Intangible factors	Demand	Socio-economic and geographic factors	Geo-economic factors	External health factors	Force majeure
Aviation policy			All others									
ASA features	*Others*											
capacity clause	national geographic limitation of competition authorities/laws	protection of national carrier through restrictive agreements	free trade areas	bilateral business and trade relations	political situation	scope of competing airlines	personal safety/fear of crime	affordability of air travel/ price	distance between countries	personal financial ability to travel	external health factors	natural disasters
designation clause	regulatory framework relating to subsidies and predatory conduct of airlines	degree of lobbying for increased bilateral agreements	visa requirements/ passport regulations	foreign direct investments	unstable political situation	level of aviation related infrastructure	tourism related demand/ touristic attractiveness	availability of other modes of transport	GDP/state of economy	population size		
withholding/ ownership clause	standards of safety	propensity to declare dispute and to make use of dispute resolution provisions and ICAO in settling disputes	capitalisation level of competing airlines	exchange rates		airline capacity	reputation image of the country	weather	cultural affinities/ historic ties	degree of urbanisation/ share of urban population		
traffic rights freedom clause	requirements for local registration of airlines	access by non-designated airlines to BASA rights	requirements for local registration of airlines	world economic situation		existence of a national carrier		special events	language difference	size of conurbation and catchment area of airports		
market access/ named points clause	aviation policy	access to 5th and 7th freedom rights where 3rd and 4th freedom rights do not exist	state of diplomatic relations/foreign policy	distribution of income/income inequality		airport slot availability						
tariff/pricing regime clause	alignment of aviation and tourism policies	access to 5th and 7th freedom rights where 3rd and 4th freedom rights exist	state of diplomatic relations/foreign policy	labour capabilities		airport slot availability						

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Government responsibility				External economic factors	External political factors	Supply	Intangible factors	Demand	Socio-economic and geographic factors	Geo-economic factors	External health factors	Force majeure
Aviation policy			All others									
cooperative arrangements clause	ease of obtaining permission to exercise the rights granted in terms of BASA	development of 6th freedom right by intermediate based airlines in Africa, the Gulf and Europe	labour law	non-aviation related infrastructure								
statistical exchange clause	anti-trust immunity for airline alliances and joint ventures	lack of updating treaties on interstate level as opposed to MOUs on aeronautical authority level	economic policy	strength of national/designated carrier								
double taxation clause	excessive reliance on YD as instrument of liberalisation	lack of implementation of/ adherence to agreed conditions by African states	tax incentives	lack of regional/ common aviation market with harmonised rules					**A two-round Delphi was conducted, which generated 25 statements of factors related to BASAs and 48 statements non-related to BASAs. These were categorised in the context of the literature review.**			
break of gauge provision	limited adoption of YD provisions	national aviation policies										
lack of reciprocity/ equal exchange of rights	lack of coordinated airline competition law in Africa											

Sources: Prideaux, 2005; Doganis, 2006; Inter*VISTAS*-ga² Consulting, Inc., 2006; WTO, 2006; Grosche, Rothlauf and Heinzl, 2007; ICAO, 2008; Ishutkina and Hansman, 2008; Piermartini and Rousova, 2008; Piermartini and Rousova, 2009; Inter*VISTAS*-EU Consulting, Inc., 2009; Rousova, 2009; Grosso, 2010; Vasigh, Fleming and Tacker, 2010

- Non-BASA Factors
- BASA Factors

5.6.2   Discussion of the identified Delphi factors, impacting air passenger traffic flows in relation to secondary literature

Government Responsibilities: "Aviation policy" and "all others"

The manner in which the government manages the domestic economy and external relations may significantly influence the size and structure of bilateral relationships (Prideaux, 2005:786). The government affects air transport system development through changes in the regulatory framework, infrastructure investment, airline ownership and operational incentives (Ishutkina & Hansman, 2008:6). Factors operating at the government level could further be subdivided, and for the purposes of the conceptual framework two main subgroups were identified for government responsibility: *"aviation policy"* and *"all others"*.

Aviation policy in terms of air passenger transport guides the country's participation in the rapidly changing aviation market. In the context of bilateral regulation, international air transport is regulated by a complex web of bilateral and reciprocal air services agreements. BASAs typically contain common types of essential provisions, which stipulate the ways in which carriers can supply air services (ICAO, 2004). These agreements have also become a mechanism for curtailing competition between airlines (Myburgh *et al.,* 2006:13) and have been utilised as a regulatory tool in protecting the national carrier. As indicated, Mozambique furnishes a clear example where the national airline is protected through restrictive bilateral agreements despite the obvious economic gains. This point was also highlighted by the feedback received from the experts.

WTO (2006) has identified seven provisions of BASAs as key market access features which have been utilised in the secondary literature to assess the overall impact of aviation policy: 1) *capacity clause*, which incorporates the market access/named points clause; 2) *designation clause*; 3) *withholding clause/ownership*; 4) *traffic rights/freedom*; 5) *cooperative arrangements clause*; 6) *statistical exchange clause;* and 7) *tariff/pricing regime clause*. These were briefly highlighted in Chapter 2 and are elaborated on in

Chapter 6. The Delphi respondents have also stipulated these as important features to consider. In addition to these, three more features pertaining or relating to BASAs were highlighted through the Delphi: *double taxation clause*, *break of gauge provision* and *lack of reciprocity of traffic rights*. Of particular importance in the national regulation of international air services is the concept of reciprocity, especially where a commercial activity is not covered by a specific provision in the air transport agreement (ICAO, 2004).

The Delphi also generated an extensive list of factors that were plotted under *"aviation policy-others"* and cover issues ranging from limited adoption of the YD provisions, lack of coordinated airline competition law in Africa, and excessive reliance on the YD as an instrument of liberalisation, which was discussed in earlier chapters with respect to the importance of the alignment between the aviation and tourism policy. The majority of these issues have been emphasised by the South African government in the Airlift Strategy of 2006. Several of the factors are discussed below.

Three factors identified through the Delphi and relating to airline competition and anti-competitive market dominance ("*national geographic limitation of the competition authorities*", "*regulatory framework relating to subsidies and predatory conduct of airlines*", as well as "*lack of coordinated airline competition law in Africa*") have received an extensive review in the secondary literature. With reference to the YD, none of the articles provide clear principles or rules that define fair and unfair competition between operators. The absence of any competition rules is a very important missing element, though essential in the implementation of the YD, which was discussed in Chapter 3. Schlumberger (2010:55) concurs that while certain RECs in Africa have recently adopted competition regulations that apply to air transport, most new bilaterals were negotiated on the basis of the principles of the YD and hence did not benefit from any competition regulation.

"*Standards of safety*" is an important factor that was highlighted by the experts, especially in the context of Africa. Several articles of the YD address safety and security directly and indirectly (articles 5.1, 6.9 to 6.12). In his study Schlumberger (2010:52) evaluated the

current aviation safety situation of African countries and concluded with an overall safety rating: six states were rated "good", 16 were considered "marginal" while 31 were rated as "poor". He concluded that the current situation with respect to safety oversight in Africa must be considered the single most important obstacle to the implementation of the YD.

The importance of aligning aviation and tourism policy, which is categorised under *"aviation-others",* within the conceptual framework of factors is confirmed by the Airlift Strategy of 2006 and the Airlift Implementation Plan of 2007. The Strategy supports national economic growth through greater alignment with the tourism strategy and industry, by prioritising tourism and trade markets and unblocking obstacles to growth through regulatory mechanisms, bilateral and multilateral negotiations within the African Union and internationally (Department of Transport, 2006:28).

"*Excessive reliance on the YD as an instrument of liberalisation*", "*limited adoption of the YD provisions*" and "*lack of implementation/adherence to the agreed conditions by the African states*" have been highlighted and discussed in numerous articles and presentations and constitute some of the key impediments to the successful implementation of the Decision in Africa. Schlumberger (2010) and Myburgh *et al.* (2006) both conclude that in practice the level of implementation of the YD in different regions paints a very heterogeneous picture. These impediments were extensively discussed in Chapter 3.

Government policy may also be a significant factor in restricting both outbound and inbound flows. This could range from visa restrictions to the amount of currency taken out of the country to the value and quantity of goods imported by returning tourists (Prideaux, 2005). The Delphi generated a list of very important factors that have an impact on air passenger traffic flows. These were plotted under the "*government responsibility all others"* ranging from free trade areas, visa requirements to the state of diplomatic relations/foreign policy.

Ndomo's (2009:19) study highlights that despite the fact that the enforcement of the COMESA free trade agreement has led to a notable rise in intra-COMESA trade, most of the countries in the region still reserve privileged access to markets in Europe, North America or Asia rather than tapping into the COMESA markets.

In terms of the *"visa restrictions/passport regulation"* factor identified by the Delphi experts, three RECs (CEMAC, ECOWAS and EAC) have made progress in enhancing the movement of people across regional borders, with the latter two having instituted regional passports (Ndomo, 2009:20).

The *"capitalisation of competing airlines"* factor was highlighted through the Delphi. For airlines, both domestic and intra-African, to take advantage of the opportunities offered by liberalisation they need a competitive cost base and the ability to attract passengers. This does not necessarily require privatisation, but does require commercialisation (Myburgh *et al.,* 2006:25). One excellent example is Ethiopian Airlines which is successfully run as an independent corporation while still being owned by the Ethiopian government.

External economic factors

A number of *"external economic factors"* also influences the level of arrivals and departures between bilateral partners (Prideaux, 2005:790). Several of these have been highlighted by the Delphi experts and are listed in the conceptual framework. Numerous studies reported a positive and significant impact of trade or flows of services on air passenger traffic flows (Myburgh *et al.,* 2006; Inter*VISTAS*-ga[2], Consulting, Inc., 2006; Piermartini & Rousova, 2008; Grosso, 2010). This important factor was identified by the experts as that of *"bilateral business and trade relations"*. One of the key elements of trade is transport. The development of trade, which leads to economic development, is only possible if the transport services utilised to ship the traded goods grow along with the growth in trade volumes (Schlumberger, 2010:153). In Africa, where road infrastructure in many countries is poor or non-existent, air transport remains an important driver of economic development.

The "*lack of regional/common aviation market with harmonised rules*" factor is related to the slow progress of the Decision, which if fully implemented would entail the improvement of the infrastructure and services as well as the removal of physical and non-physical barriers (Department of Transport, 2006:19). In essence this would entail liberalisation of intra-African air services, as discussed in Chapter 3.

External political factors

Often, *"political factors"* arise that are beyond the control of the countries. The Delphi generated two factors, namely, "*political situation*" and "*unstable political situation*". These two factors are depicted individually in table 5.4 as they are linked to two different sets of factors: BASA and non-BASA. A very recent example in Africa is the negative impact of civil war in Libya and civil unrest in Egypt on air passenger traffic flows.

Supply

"Supply factors" that were identified by the Delphi experts range from the scope of competing airlines to airline capacity and airport slot availability. "*Scope of competing airlines*", which reflects aggregate capacity, frequency, number of city-pairs served, number of airlines offering competitive service and "airline capacity" could be seen as service-related supply factors, which are covered very comprehensively in air transport literature on quality of service (Jorge-Calderón, 1997; Abate, 2007; Grosche, Rothlauf & Heinzl, 2007). "*Level of aviation-related infrastructure*" and in particular "*airport infrastructure*" is imperative in building African airlines. This is not only essential in terms of safety and passenger comfort, but also for the growth envisaged by the African countries (Mills & Swantner, 2008:21).

Intangible factors

There are factors that relate to the built and natural environment as well as to the destination's image, lifestyle, barriers to flow and culture (Prideaux, 2005:789). These have been grouped under *"intangible factors"*, indicating the difficulties often encountered

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in measuring them. The "*personal safety/fear of crime*" factor, identified by the Delphi experts, goes hand in hand with the "*reputation/image of the country*". South Africa is a prime example of the interaction of these two factors and the impact of crime on the perception of the destination. The link between tourism and air transport suggests that the expanding number of air passengers travelling for touristic reasons is also linked to the expansion of low cost airlines. The "*tourism related demand/touristic attractiveness*" factor generated by the Delphi indicates its importance for air travellers. Secondary literature (Inter*VISTAS*-ga[2] Consulting, Inc., 2006; Myburgh *et. al.,* 2006; Piermartini & Rousova, 2008; Velia *et al.,* 2008; Inter*VISTAS*-EU Consulting, Inc., 2009; Grosso, 2010) confirms that more liberal transport conditions increase, or are projected to increase growth, employment and government revenues.

Demand

"*Affordability of air travel/price*" and "*availability of other modes of transport*" are common air transport *"demand"* determinants. For many travellers, especially price-sensitive leisure travellers, the price of the flight and the price of the competing flights are probably the most important factors. However, these price factors affect different segments of the population; for time-sensitive business travellers one ticket price versus another competitor's ticket price may not be as important as for price-sensitive leisure travellers. The availability of substitutes such as "*other modes of transport*" is also an important demand factor. In a situation where there is a lack of other modes of transport and relevant infrastructure, for example, from South Africa to Nigeria, the demand for air travel could be expected to increase (Vasigh, Fleming & Tacker, 2010:56).

Socio-economic and geographic as well as geo-economic factors

The impact of *"socio-economic and geographic"* as well as *"geo-economic factors"* on air transport has been quantified in numerous studies (Inter*VISTAS*-ga[2] Consulting, Inc., 2006; Myburgh *et al.,* 2006; Grosche *et al.,* 2007; Abate, 2007; Piermartini & Rousova, 2008; Warnock-Smith & Morrell, 2008; Inter*VISTAS*-EU Consulting, Inc., 2009; Grosso, 2010). Research confirmed that the number of passengers decreases with *distance* and

that air passengers between countries which share a *common border* are fewer than between non-adjacent countries. *Colonial links* and *common language* increase the number of passengers between two countries. *Population size* and the *GDP* both have a significant and positive impact on air passenger traffic flows. The interaction between GDP and air travel is defined by the economy's unique factor conditions and air transportation supply. Government plays an important role in this relationship since its policies can influence both economic and air transportation attributes through regulation and infrastructure investment (Ishutkina & Hansman, 2008).

External health factors and force majeure

The relationship between the supply and demand of air transport determines the allocation of airline resources to a particular route. This relationship is subject to exogenous demand shocks such as wars and acts of terrorism, political and economic sanctions, changes in the entry requirements, perceived health risks, natural disasters, significant shifts in world financial markets or exchange rates and oil shocks (Ishutkina & Hansman, 2008). The Delphi has generated a number of these variables that were grouped under various categories as discussed above. In their study, Myburgh *et al.* (2006) found that adverse events such as health factors, natural disasters and political instability negatively impact on air passenger traffic flows. The Delphi has generated similar factors that have been categorised under "*external health*" and "*force majeure factors*".

STEP 5: Qualitative – quantitative link

In summary, the main objectives of the qualitative research were achieved. These were: 1) to confirm the features of BASAs and the factors not related to BASAs based on the opinions of experts and viewed by them as having an influence on air passenger traffic flows between African country-pairs and 2) to comprehensively analyse these factors in relation to secondary literature and current trends, and to explore their link to quantitative analysis. The preceding sections have succeeded in clarifying the link between the qualitative and quantitative research applied in this study.

Based on the above discussion of factors generated by the Delphi and their use in secondary research, it is evident that there are numerous factors related to BASAs and non-BASA factors that exercise an influence (positive or negative) on air passenger traffic flows between a country-pair. It was therefore important to select an analytical tool that would allow for quantifiable measures of the impact of the aviation policy on air passenger traffic flows while taking into account other important independent variables, *inter alia*, the GDP, trade flows, population size and common language. The quantitative research, in particular the selection of the empirical model for the panel data set and the choice of independent variables, is discussed in Chapter 6.

5.7   CONCLUSION

In this chapter the qualitative method, in the form of a two-round Delphi, was comprehensively analysed and substantiated, highlighting the important link between the qualitative and quantitative research. The results of the Delphi were presented and discussed, and subsequently plotted in relation to secondary literature. The decisions relating to the selection of the expert panel and its size were fully explained. The use of content analysis as the method best suited to analyse the qualitative data from round one of the Delphi was fully elaborated on.

The next chapter discusses the quantitative methodology in the form of a one-way fixed panel regression as well as the empirical model utilised to attain the relevant research objectives. The use and the application of the ALI, developed by the WTO Secretariat, are explained in the context of the South African aviation policy in Africa. The empirical panel regression model as well as the selected predictors that account for the respective data availability and limitations, are comprehensively discussed. The alternative hypothesis is further refined with sub-hypotheses being generated.