CHAPTER 1

INTRODUCTION

1.1 EVOLUTION OF THE AIRPORT BUSINESS

Airports play a critical role in promoting trade, tourism and economic development of a country. The association of the civil aviation sector with economic activity and its catalytic impact on general development is now well recognized. The International Civil Aviation Organization (ICAO) has estimated that $100 (≈ 6,233) spent on air transportation produces benefits worth $325 (≈ 20,257) for the economy: a hundred additional jobs in air transport results in 610 new economy-wide jobs. Though the aviation sector in India is rapidly gaining importance, its many impacts have not been rigorously quantified. The aviation sector might one day provide a routine connectivity to remote areas otherwise inaccessible by other modes of transportation. During the last two decades, an upward trend in international tourism and globalization substantially increased traffic rates in the aviation sector (Airbus 2010). Although several external shocks such as Gulf war, economic downtime, and terror attacks temporarily interrupted this trend, there was little impact on the overall growth. One major contributor to this growth has been the deregulation of the airline industry, which began in the nineteen-seventies and resulted in lower airfare. This was the starting point of a gradual liberalization process in the aviation industry.

As a result of the airline deregulation, many airports feel increasingly exposed to the cost pressure and are obliged to operate efficiently (Liebert 2011). Currently, the competition in the air transportation industry is fierce. The deregulation of air transport markets has had a dramatic impact on
the air transportation industry. The partial deregulation of Indian air transport markets initiated in the nineties and consequent competition has transformed the domestic airline operations. Choice and flight quality service, especially on trunk routes, has increased dramatically. Flexible traffic structures are making flying increasingly more affordable. Customer interface and quality of ancillary services are improving. Innovative airline operation models are being introduced. Before the deregulation period, Indian airports operated in the regulated era where by air transport networks were determined by the governments. During the monopolistic conditions in the Indian airline industry, there was minimal competition between airports and there was a lack of incentive to reduce costs and improve efficiency. As a result, airports were focused on operations and airport marketing was limited to passive approach such as the publication of an Airport Time Table. Before deregulation, airports the world over were considered to be public utilities with public service obligations. This was especially the case at Indian airports, where the focus was on public service by providing infrastructure for passengers and cargo handling such as runways, terminals and apron. As a result of the public service orientations, most airports were largely empty, loss-making and heavily subsidized. Airport management was largely operation-focused with the public service background, and commercial and financial management practices were not given top priority. Reforms in India were gradually accompanied by private sector involvement. In India, the Air Corporation Act, 1953 was repealed in 1994, leading to the opening up of scheduled domestic air transport services in India to private players. The domestic air transport industry has registered impressive growth on several parameters including the number of aircraft-kms flown and passenger-kms flown (Airbus 2012).

Deregulation has radically altered the business environment within which many airports in India are functioning. The consequence of
deregulation was that future air service to and from Indian airports may be increasingly dictated by unpredictable and rapidly changing market forces rather than public service considerations. The move towards commercialization and privatization has pressurized airports to become more productive and competitive. Airport managers have to adapt themselves in response to such pressure. They are now acting more like corporate business managers and set objectives and goals, develop competitive strategies, implement, monitor, evaluate outcomes and respond to the dynamics of market competition. Airport business models have changed dramatically from being perceived as a fundamental public service to a commercial activity. Richard (2003) argues that the efficient airports usually adopt business models that focus on a segment of the possible markets to specialize in the needs of specific clients and serve them cost-effectively; spread nationally and internationally to achieve economies of scale and scope.

1.2 AVIATION SCENARIO

1.2.1 Global Aviation

Figure 1.1 illustrates the increases in global air travel since the 1970s. It can be seen that air transport has faced several external exogenous events such as the Gulf crisis in 1991, the Asian crisis in 1998, the war on terrorism in 2001, the SARS international health crisis in 2003, and the financial crises of 2008, as well as more medium to long term challenges (oil price surges, airport congestion, and competition with high speed train networks). Although the performance of the air transport industry was affected by these events, air transport still grew at a yearly average of 4.2% from 1990 to 2010. It should be noted that from 2004 to 2010, the Revenue Passenger Kilometers (RPKs) rebounded quickly after the above events, increasing 14% in 2004 and 7% in 2010 (Airbus 2012). According to a recent forecast report produced by Boeing in 2012, air transport will double in the
next 20 years, and the centre of the world air transport is expected to move towards the Asia-Pacific region (Po-Lin-Lal, 2013). The forecast said “By 2032, the Asia – pacific will lead the world in the traffic overtaking Europe and North America (Airbus 2012).”

Figure 1.1 World Annual Air Traffic
Source: Airbus 2012

1.2.2 Indian Aviation

Airports Authority of India (AAI) is the ministry of the Civil Aviation sector in the country. AAI manages 123 airports, including 19 international airports such as Chennai, Kolkata, Ahmedabad, Jaipur, Varanasi, Gaya, Amritsar, Goa, Lucknow, Coimbatore, Trichy, Trivandrum, Mangalore, Guwahati, Patna, Srinagar, Pune, Calicut, Port Blair (3 civil enclaves), 7 custom airports (4 civil enclaves), 80 domestic airports and 19 other civil enclaves. AAI also provides CNS-ATM facilities at all the civil airports in the country. AAI controls and manages the entire Indian airspace covering 2.8 million square nautical miles, which includes 1.05 million square nautical miles on land and 1.75 million square nautical miles over the ocean. AAI is continuously engaged in the modernization and upgradation of airport
infrastructure, both metro and non-metro airports including Tier-II and Tier-III cities. As per the official website of Airport Authority of India, the following International Airports are managed by AAI: Chennai, Kolkata, Ahmedabad, Jaipur, Amritsar, Goa, Trivandrum, Guwahati, Srinagar, Calicut and Port Blair. The JV international airports are Bangalore, Cochin, Delhi, Hyderabad, Mumbai and Nagpur. This study selected all 17 international airports. Appendix 1 shows the traffic statistics for international and domestic aircrafts and passengers movement (AAI 2011).

1.3 IMPORTANCE OF AIRPORT BENCHMARKING

Benchmarking is defined as the process of either making comparisons over time within a single organization (internal benchmarking) or comparing performance between two or more organizations (external benchmarking) in order to make improvements in airport operations. (Airport Economics manual, ICAO 2013). Benchmarking is the process of comparing the performance/activities of one unit against that of "best practice" units. Airport managers used to benchmark their performance with peers and set appropriate output targets for improving their business. Airport managers utilize benchmarking to identify best-practice standards and to develop new concepts for performance improvements. Customers, shareholders and investors are interested in using benchmarking as a decision-making instrument. During the last two and a half decades, worldwide, the air transport industry witnessed three major transformations. (i) The industry substantially moved away from government control and ownership towards deregulation and private ownership. The origin of this trend is generally attributed to the deregulation of the U.S airline industry in the late 1970s, which led to lower fares and higher productivity. (ii) The second transformation pertains to liberalization of international air transport services. At the bilateral level, within the traditional approach of limiting the points
served, capacity, number of airlines and pricing, many countries have begun to incorporate greater flexibility or features of liberalization. (iii) The third transformation is the emergence of co-operative alliances between airlines, encompassing a wide range of operational and commercial programme such as code-sharing and loyalty programme.

Traditionally, all over the world, the airport sector has been under government control. The move towards airport privatization is a relatively recent phenomenon and driven by two key factors. (i) Due to continuous increases in passenger traffic across the world, there was an urgent need to expand existing capacity and invest in additional facilities (ii) The declining level of operational efficiency and the apparent inability of government operators to run airports in a cost-effective manner have made a strong case for involving the private sector. Traditionally, airports were managed and regulated as public utilities, which is still present in many countries. However, in the late eighties, a worldwide process of privatization emerged. A change in the management style towards commercialization led to substantial investments in non-aeronautical activities. Furthermore, vertical and horizontal boundaries have changed over time. The technology of airports has changed due to innovations: many airports operate with automated baggage handling systems, thereby shifting the production frontier outward. While some airports outsourced their labour-intensive activities such as ground handling to improve productivity. The liberalization of bilateral air service agreements offered the opportunity to attract international traffic to gateway airports. In order to meet future demands, congested airports needed to expand their capacity and introduce new technologies to increase runway and terminal capacities. However at many major airports the excess demand was rationed rather inefficiently through queuing and slot allocation mechanisms increasing the number of non-weather related delays (Liebert 2011). Today, the airport industry has evolved into a dynamic market environment.
Increasing commercialization, privatization and restructuring processes, a shift towards incentive regulation and advanced technologies have changed the nature of the airport industry and may have contributed to productivity and efficiency changes. This changing nature of the airport industry during the last few decades offers an equally challenging and interesting objective for applying performance and benchmarking techniques. Benchmarking is one of the improvement tools in quality management. The breakthrough of benchmarking in America and Europe followed from the case of Rank Xerox. In the early 1980s, Rank Xerox lost its market shares and later on managed to recover by improving its flexibility to adapt to new situations by systematic benchmarking of almost all process within the firm. Since the early 1980s, benchmarking has been a widely used and accepted business practice (Mcgaughey et al 2005). The development of benchmarking is very much associated with Xerox in the USA (Sisson & Marginson 2003).

Since the liberalization of the aviation industry, airport benchmarking has become increasingly important and will remain a key instrument for managers, political decision makers and may improve its usefulness for regulatory purposes. Therefore, communication between management, research and policy in the future is crucial to further improve the application of airport benchmarking. In order to improve benchmarking for practical use, academic research continuously aims to refine quantitative techniques. Since the late nineties, a number of academic research studies emerged utilizing quantitative approaches to assess the productivity and efficiency of airports (Liebert 2011). Airport managers still prefer to use simple partial measures, while academics utilize sophisticated overall productivity and efficiency approaches (Anne 2005, Liebert 2011). Total Factor Productivity based measures have recently received increased attention in air transportation research and become a preferred measure. There is not much research done in airport benchmarking in India that summarizes the
empirical studies in India and discusses the findings. Hence, the aim of this study is therefore to provide an overview of the current literature in quantitative approach of airport benchmarking that utilizes Data Envelopment Analysis (DEA) and Analytic Hierarchy Process (AHP). DEA has been applied to assess the productivity and efficiency of airports in India. In order to further our understanding of the airport industry, this study reviews the variable selection in previous studies and compares empirical findings. Data Envelopment Analysis (DEA) approach also helps to identify the benchmarking organisations which can be referred by inefficient units to become efficient. AHP also helps in evaluating the overall performance of the airports.

1.4 QUANTITATIVE APPROACHES TO BENCHMARKING

Airport benchmarking is a management tool used to identify a set of relatively efficient and inefficient airports. For every inefficient airport, this tool identifies a set of corresponding reference airports that can be utilized as benchmarks for improvements. It also allows for computing the necessary improvements required in the inefficient airport’s outputs to make it an efficient airport (Po-Lin Lai 2013). Subsequent to airline deregulation, an increasing commercialization, privatization and restructuring gradually changed a sovereign operated airport industry to modern business enterprises (Liebert 2011). Anne (2005) argues that the increasing interest in airport benchmarking is a result of the changes in ownership, liberalization, commercialization and globalization trends which have influenced airport business growth, complexity and competitiveness. This increasing interest has spurred the growing literature to aim at developing various quantitative approaches of benchmarking (Liebert 2011). Predominantly used techniques are Data Envelopment Analysis (DEA) and Analytic Hierarchy Process (AHP). Data Envelopment Analysis is one of the most popular tools in
management literature for performance measurement, while the Analytic Hierarchy Process (AHP) is a popular tool in the field of Multiple-Criteria Decision-Making (MCDM). The goal of DEA is to determine the productivity of a system or decision-making units (DMU) by comparing how well the DMU converts inputs into outputs, while the goal of MCDM is to rank and select from a set of alternatives that have conflicting criteria. Multi Criteria Decision Making methods widely used by the researchers for the purpose of ranking are SAW (Simple Additive Weighting), TOPSIS (Technique for Order Preference by Similarity to the Ideal Solution) and AHP (Analytic Hierarchy Process) respectively (Mitan & Aura 2002). SAW and TOPSIS methods, the weights used to express the relative importance of attributes (criteria) can be determined either analytically or empirically by the Decision Maker (DM) himself. The AHP method does not require such explicit quantification of attributes (criteria), but it needs specific hierarchical structuring of the MCDM problem. The method itself then generates the weights of the criteria by using the AHP measurement scale according to a specified procedure. The range of quantitative methods used in airport benchmarking is reasonably wide (Liebert 2011). The majority of airport studies utilize a deterministic frontier DEA approach to benchmarking, but during last three years the Number of Stochastic Frontier Analysis (SFA) approach applications has increased significantly. On comparing Stochastic Frontier Analysis approach and DEA, DEA proves to be the dominant application requiring neither prior assumption on the functional form, nor price information to aggregate multiple inputs and outputs.

This study has explored the use of Data Envelopment Analysis (DEA) as an instrument for investigating the efficiency of airports in India. Analytic Hierarchy Process (AHP) is used to evaluate the four metro domestic Indian airports.
1.5 SERVICE QUALITY

Kasper et al (1999) defined service quality as “the extent to which the service, the service process and the service organization can satisfy the expectation of the user”. In the contemporary service industry, service providers now face increased competition for survival since consumers have become increasingly sensitive to service quality. Hence, service companies are attempting to find ways to enhance quality of service to satisfy their customers. Like many service industries, the airport industry has turned to service quality as a strategy for achieving competitive advantage (Lee-Mortimer 1993). Marketing did not play a significant role in the management of airports until the 1980s, prior to which the airport was commonly viewed as a free public service or utility provided by governmental or quasi-governmental entities (Fodness & Murray 2007). As an outcome of deregulation in the airline, market forces rather than public service considerations increasingly dictate services provided by civil airports. The new market advocates service quality-driven management practices as a means of satisfying airline customers and implies that airports that adopt a more service quality approach than their rivals would perform better (Fodness & Murray 2007). Deregulation of the airlines and other sectors of the air transport industry, however, motivated airports to begin competing for airline routing. As a result, by the 1990s, many airports were concentrating intensively on marketing activities in an effort to survive in an increasingly competitive marketplace. Academic and industry researchers regularly measure passengers’ perceptions of airport services quality to benchmark performance matrices directly from the voice of the customer (Chen 2002) to identify opportunities for service improvements. Hence, this study intends to address such critical issues based on a comprehensive air passenger survey. The Service Quality model approach is applied to measure the perceptions of passengers’ service quality in Chennai airport using a modified scale.
Research findings from this study can provide valuable information for airport managers to identify appropriate measures for improving their service quality and responding to the expectation of their customers.

1.6 NEED FOR THE STUDY

1.6.1 Airport Benchmarking

The increasing need for airport benchmarking is a result of the changes in ownership and the liberalization, commercialization and globalization trends which influenced the airport business growth, complexity and competitiveness (Liebert 2011). Airport benchmarking can serve different purposes and has an important implication on contributions from a number of stakeholders:

i. Efficiency comparisons between airports to improve airport operations, helps airport manager to improve their standing in a competitive environment

ii. Identification of efficient airports helps the airline manager in their flight operations

iii. Benchmarking is needed for the policy maker to develop inefficient airports in to efficient airports

In order to improve the use of benchmarking and provide a valuable instrument for airport managers, airline managers and policy makers, academic research continuously aims to refine quantitative methods to “Assess the Productivity and Efficiency of Airports” and “Evaluation as well as Ranking of Airports.” An examination of the literature on Airport Benchmarking revealed gaps in two specific areas, particularly in developing countries:
i) To measure the relative efficiencies of airports and set targets for inefficient airports using the DEA in Indian Airports

ii) To develop an airport evaluation system for ranking airports using AHP in Indian Airports

Therefore, there is a need for research on airport benchmarking to provide valuable suggestions for airport managers and policy makers.

1.6.2 Airport Service Quality

The service quality of an airport is expressed in terms of perceived level of service delivered to the air passengers (Francis, Humphreys & Fry, 2003). Customer’s needs are ever changing and fulfilling their needs to make them a satisfied customer is challenging to managers of airport services. Today’s customers prefer more comfortable zones and they never bother about the cost of tariff. They expect world class standards during the utilization of airport services both in domestic travel as well as international trips. Further, air passengers are very much particular on the quality of services. Academic and industry researchers regularly measure passengers’ perceptions of airport service quality to benchmark performance metrics. In developing countries like India, only a few researches have been done in the airline Industry. There is a need to measure the passenger’s perceptions of service quality with respect to airport services in developing countries. Airport service quality can serve different purposes and has an important implication on contributions from a number of stakeholders. This study would provide a significant theoretical contribution to the existing literature related to the variables that impact service quality related to airport industry. The managerial implication of this study is a passenger-driven frame work for the airport manager on how to enhance the quality of the service quality management process thereby improving service quality. The study offers
direction for policy makers who seek to use service quality as critical components of their airport’s competitive strategy.

1.7 MOTIVATION FOR THE STUDY

Increasing commercialization, privatization and restructuring processes, a shift towards incentive regulation and advanced technologies changed the nature of the airport industry (Liebert 2011). Today the airport industry has evolved into a dynamic market environment. These factors may have contributed to productivity and efficiency changes. For these reasons, airports offer a rich field for performance comparisons commonly defined as benchmarking (Liebert 2011). Within academic benchmarking, a number of studies emerged since the late nineteen-nineties assessing the productivity and efficiency of airports with DEA, SFA, and index TFP (Liebert 2011). Till date DEA proves to be the dominant application requiring neither prior assumptions about the functional form, nor price information to aggregate multiple inputs and outputs. Common objectives of empirical studies are the examination of efficiency changes over time or aim to explain the efficiency difference with exogenous factors. These performance measures are important to business and operations management, regulatory bodies, governments, and other stakeholders (Humpreys & Francis 2002b). Airport managers and governments evaluate airport performance for a number of reasons, including the assessment of financial and operational efficiency, the evaluation of alternative investment strategies, the monitoring of airport activities from a safety perspective, and for the purpose of monitoring environmental impact (Doganis 1992). In the mid-1990s, the literature on efficiency evaluation, which had already been applied to numerous industries (for example, electricity, water, banking, health, and agriculture) (Giokas 1991; Bureau et al. 1995; Ozcan & McCue 1996; Zang & Bartels, 1998), was introduced to the airport sector.
To follow this trend, a number of relevant studies have been published in the past 20 years, although the level of interest in aviation has still been relatively modest as compared to other industries, with the range of approaches applied reflecting a lack of consensus in determining the methods that suit the complex reality of the airport industry. As many airports have transformed from government operated public utilities to privately operated commercial enterprises, there has been an increased interest in utilizing the benchmarking technique to assess and improve performance. Benchmarking has been used to examine a number of different aspects of the airport business such as pricing, service quality, operating cost and efficiency (IATA 2010):

- Pricing means the cost to the airline of flying to the airport in terms of landing fees, terminal charges, etc.

- Service quality means customer satisfaction levels, average queue times, delays

- Cost means unit cost, such as operating or total cost per Workload Unit (WLU)

- Productivity or efficiency means Total Factor Productivity (TFP), or Single Factor Productivity measures (e.g. WLU per labor hour).

Most of academic studies focused only on “Assessment of Productivity and Efficiency of Airports”, but not on “Improvements of Airports.” The following section will provide the motivation for this study from the theoretical, managerial and policy maker perspective based on the current literature on airport benchmarking.
Theoretical Perspective

The theory of efficiency estimation provides a wide range of estimation methods with their own advantages and limitations. Scientific approaches used in airport benchmarking start from relatively simple averaging methodologies but further include more complicated frontier-based models. Methodologies, based on average of values, consider a relationship between weighted airport outputs and inputs. Averaging methodologies assume that all airports in a sample operate efficiently, which obviously does not match the real situation. Frontier-based methodologies such as Data Envelopment Analysis and Stochastic Frontier Analysis allow inefficiency components by construction, but require a larger volume of data for estimation. The majority of airport studies utilize deterministic frontier DEA approach to benchmarking but during last three year the number of stochastic SFA approach applications has increased significantly.

On comparing Stochastic Frontier Analysis approach and DEA, DEA proves to be the dominant application requiring neither prior assumption on the functional form, nor price information to aggregate multiple inputs and outputs. For every inefficient airport, DEA identifies a set of corresponding reference airports that can be utilized as benchmarks for improvements. DEA also allows for computing the necessary improvements required in the inefficient airport’s outputs to make it an efficient airport. These aspects are encouraging and motivating to develop the sound theoretical model.

With the publication of a substantial number of benchmarking studies, the aim of this study is to provide an overview of previous research that utilizes DEA, to assess the productivity and efficiency of airports. The aim is to further understand the airport industry to explore the current literature on airport benchmarking and conducting empirical research. Major emphasis is placed on global technical efficiency, pure technical efficiency,
scale efficiency, reference airport sets, and efficient target value for inefficient airports using DEA and ranking of airports using AHP. Next, development of an application on “Aircraft Evaluation Model” for ranking is eminently necessary. Next, it is believed that the results have substantial implications which are very useful for managing airports. Last but not least, as the literature review will reveal, the study is a pioneering work. It is expected that further development of the applicable models for fairer assessment will follow.

**Managerial Perspective**

Traditionally airports were public sector enterprises and operated the infrastructure for passengers and cargo handling. Hence the objective of an airport was to offer a good level of service irrespective of commercial and financial purpose. However, as a result of the airline industry liberalization in the late seventies and eighties, some airports might have become more competitive and undergone structural changes. Some airports became privatized, others who remained as public sector increased their degree of commercialization and benchmarking to gain more importance. The majority of academic studies till date focus on “Assessment of Productivity and Efficiency of Airports” whereas “Evaluation and Ranking of Airports” is lacking. These aspects are encouraging and motivating to measure the relative efficiencies of Indian airports, ranking of airports and benchmarking of inefficient airports. The application of airport benchmarking will be improved in order to enhance its usefulness for managerial purposes.

**Policy Maker Perspective**

With the deregulation of the aviation industry, airport benchmarking became an important instrument for the aviation policy maker. In order to improve its application, a number of academic studies emerged
during the last two decades. The main objectives of policy maker are “to enhance airport facilities to make the airport user friendly and achieve higher levels of customer satisfaction” and “to provide a market orientation to the present structure, bridge the resource gap and encourage greater efficiency” (AAI 2010). These aspects are encouraging and motivating to fix the target value such as aircraft movements and passenger movement for the inefficient airport to become an efficient airport and also providing an airport evaluation system for ranking purposes. The application of airport benchmarking will be improved in order to enhance its usefulness for policy maker's purpose.

Airport Service Quality

With the emergence of highly competitive markets and commoditization of the airport offering, differentiation through service quality is a strategic imperative for airport managers (Fodness & Murray 2007). Multiple studies show that superior service quality ensures higher levels of customer satisfaction and is one of the most important strategies for business competitiveness in services. To ensure airport service quality, a service provider should identify and try to meet or preferably exceed air passenger’s expectations. There are compelling reasons to manage service quality in the airport industry. Due to the complex airport services cape and the mix of diverse services in one setting, service quality perceptions are complicated to measure in the airport context (Fodness & Murray 2007). Because of the privatization trend seen in the airport industry and airports’ recent shift in strategies towards increasing commercialization, managers need better tools to handle this shift. Airport managers are well aware of this and it is common that airports evaluate and measure service attributes. Intriguingly, there is still a limited amount of conceptual and empirical studies on passengers’ perceptions in the airport industry. The need for a new
measure for customers’ perceptions in the unique airport setting is backed up by many researchers. The motivation for this study is to modify the existing scale and test its validity in Chennai Airport. The reason for selecting Chennai Airport is one of the largest international gateways into the country, the major hub airport in Southern India and it has been experiencing mostly study growth over the last nine years.

1.8 OBJECTIVES OF THE RESEARCH

The following objectives were framed for this study

1. To measure the relative efficiencies of airports and set targets for less efficient airports using the Data Envelopment Analysis (DEA)

2. To develop an airport evaluation system for ranking airports using Analytic Hierarchy Process (AHP)

3. To measure the passengers’ perception of service quality with respect to airport services in a developing country using Modified Scale

Since this research aims to provide information useful for managing the airports in the modern era, the data for the objective one was collected during the period of January 2011 to December 2011, for objective two the period was from December 2012 to January 2013 and for objective three it was from November 2012 to March 2013. The outcomes of the study are expected to contribute to the standardization of measurement procedures of airport services.
1.9 SCOPE OF THE CURRENT RESEARCH

This study focuses on three major research dimensions relating to measuring services of airports in a developing country. Within academic benchmarking, a number of studies emerged since 1990s for assessing the productivity and efficiency of airports with Data Envelopment Analysis (DEA), Stochastic Frontier Analysis (SFA) and Non-parametric index number (Liebert 2011). Till date DEA proves to be a dominant application requiring neither prior assumptions on the functional form or price information to aggregate multiple inputs and outputs. It assesses the efficiency of airports in India which is a typical case of a developing country and to measure their relative efficiency using DEA. Multi Criteria Decision Making (MCDM) has been applied in benchmarking studies in the case of multiple–conflicting objectives. The Analytic Hierarchy Process (AHP) is a popular approach to MCDM. It is used to develop an airport evaluation system for ranking the metro airports using Analytic Hierarchy Process (AHP) with the Indian airports as cases. Currently, there is need for airport managers to differentiate their airports by meeting passengers’ needs. Airport managers clearly understand the importance of passengers’ perceptions of airport service quality. Service quality model has been applied to develop a modified scale to measure the perceptions of passengers’ service quality in Chennai airport. This measure of perception of service quality will help to build a performance benchmark.

1.10 ORGANISATION OF THESIS

The thesis is organised into six chapters. The first chapter highlights the evolution of airport business, the importance of airport benchmarking, quantitative approaches to benchmarking, service quality, need, motivation, objectives and the scope of the current research.
Chapter two reviews the literature related to benchmarking with special focus on DEA & AHP and Service quality with emphasis on the airport industry. A systematic review is done to identify the gaps in understand the methodological rigor, and to evolve appropriate frameworks of benchmarking in airport industry.

Chapter three explains in detail the proposed research methodology for measuring efficiency, ranking and service quality of airports. This chapter will describe the methodology used to address the research objectives.

Chapter four discusses the quantitative approaches of benchmarking with special focus on DEA and AHP. This chapter provides an analysis of the findings in relation to the research objectives.

Chapter five deals with airport service quality. This chapter provides a systematic procedure to develop a scale for measuring airport service quality.

Chapter six summaries the findings and conclusions of the study. This summarises the salient findings, provides recommendations and suggests the direction for future research.