



IMPROVING PASSENGER SATISFACTION AT AIRPORTS: AN ANALYSIS FOR SHORTENING BAGGAGE ACCESS TIME

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ABSTRACT

In order to achieve high levels of passenger satisfaction, many performance indicators are taken into account by airport management. Among these, baggage access time is an important issue that can reduce passenger satisfaction levels at airports. In this study, the process and the antecedents of baggage access are examined by taking service providers into consideration. Triangulation approach is followed in order to reveal the hidden reasons for long baggage access times. With this aim, a focus group study, observations and in-depth interviews are conducted. In light of the findings, managerial implications and recommendation for further research are provided.

1. INTRODUCTION

The main service providers in airport management are the employees, airport operator (either public or private administration), airline companies and ground handling firms. However, all these players serve to create one common goal; passenger satisfaction. The journey of arriving and departing passengers starts as soon as they land or arrive at the airport. During their time at the airport, passengers are served by various service providers at security control, check-in counters, passport control, and during baggage access and boarding processes. Passenger satisfaction is impacted by the service levels during these stages. Baggage access time is an important indicator for passenger satisfaction and performance evaluation of the service providers. Long waiting times for baggage can cause dissatisfaction among the passengers and can reduce the perceived service quality at airports. According to SITA (2013) report, reasons for delayed baggage include mishandling in transfer and arrival, loading error, airport / customs /weather /space-weight restrictions, ticketing error, bag switch, security and tagging errors.

In this study, the process of baggage access in an international airport in Turkey is examined. The aim of the study is to use the triangulation approach to reveal the antecedents of baggage access time, and provide managerial recommendations to decrease the access times. Regarding these, we present literature survey, methodology, findings and conclusion as the main sections of the study.

2. LITERATURE SURVEY

Since time is considered as a scarce resource (Feldman and Hornik, 1981), in service industries, satisfying the time requirements of the customers has become crucial (Lovelock and Wirtz, 2004). The period of waiting for the service refers to “the time from which a customer is ready to receive the service until the time service commences” (Taylor, 1994; 56). According to Kostecki (1996), determinants of clients’ dissatisfaction with waits are based on characteristics of wait, service/product/perception and client characteristics. The length of waiting time for the service can drive future behavior by shaping overall service evaluations (Dubé-Rioux et al., 1989; Taylor, 1994; Taylor and Claxton, 1994; Groth and Gilliland, 2006) and has great impacts on satisfaction levels (Diaz and Ruiz, 2002; Tom and Lucey, 1995; 1997). Waiting can occur in three phases: pre-process, in-process and post-process delays (Dubé-Rioux et al.; 1989). Regardless of the waiting type, waiting and waiting lines tend to create an increase in marketing costs and a decrease in customer satisfaction (Kostecki, 1996).

Terminal activities for passenger and baggage processing such as cargo handling, airport maintenance, operations and administration activities and baggage handling also play crucial roles for passenger satisfaction (Correia et al., 2008a) through impacting the total time spent at the airport (Correia et al., 2005; Correia and Wirasinghe 2007). At airports, passengers can spend too much time due to waiting at any counter (eg. baggage reclaim counter), and such service failures are likely to cause a decrease in the level of perceived service quality (Martin-Cejas, 2006).

There are two different types of waiting time at airports, before departure and after arrival. Baggage handling is amongst the leading influence on passenger flows and airport processes, both for departing and arriving passengers (Freivalde and Lace, 2008). The time spent before departure is based on screening the passenger (Gkritza et al., 2006) and checked baggage screening (Leone and Liu, 2005). The time spent before departure varies according to peak period, number of passengers, number of bags, passenger inter arrival rate to check-in queue, promptness of arrival to airport (passenger and baggage demand) (Leone and Liu, 2005). Some of these metrics also impact the waiting time after arrival. Baggage access time is stated as processing time (Yeh and Kuo, 2003) and revealed as a significant service attribute for passenger service evaluation. Waiting for the baggage at the airports is a post-process delay at the final stage of service delivery after core service. More specifically, promptness and accuracy of baggage delivery are revealed to be an important measure for passenger satisfaction (Park, 2007) and perceived service quality (Correia et al.; 2008b).

As discussed, studies concentrating on after arrival in air transport management are limited. Therefore, this study aims to contribute to the literature on this topic.

3. DATA AND METHODOLOGY

This study aims to reveal the reasons for delays in baggage access, which are currently not examined comprehensively by conducting observations, in-depth interviews and focus group study. Triangulation, the usage of these techniques in combination, provided high levels of reliability and validity in this study. The deployment of these different methods

provided a deeper understanding for the terminal structure, operational areas, information flow between departments, working conditions and ground handling firms.

Firstly, observations were made in different stages of the baggage operation in order to create a general view of the steps in "Baggage Control Department" and to view the problems in processes. The steps followed were video-recorded and notes were taken.

Secondly, for analysing different aspects of this process, three semi structured in-depth interviews were conducted. As ground handling firms are the most important players in the baggage handling process, interviews were done with one employee and two managers of the two different ground handling firms. The interviews lasted around 45 minutes and were recorded by the researchers. The themes of the interviews were predetermined as the baggage handling process flow, the problems exposed during the process and their importance levels, the actions taken for the encountered problems, and the ways to decrease the baggage access time.

A focus group study was conducted with a group of 7 participants, presided over by a moderator (one of the researchers), and 2 senior students as note-takers. Participants were chosen to represent different aspects of airport work. The participants were the ground handling firms' apron service engineers (2) and the planning officer (1), and the airport's mechanic systems engineer (1), the baggage control officer (1) and the baggage control manager (1). This focus group meeting lasted 2 hours. The discussions among the participants revealed a number of previously unrecognized and unexplored issues in baggage access process.

Observations and in-depth interviews were performed by five senior students, guided by the researchers through the entire process. The necessary trainings and instructions were provided to the senior students regarding in-depth interviews and observation techniques in order to prevent bias. After audio recording, the researchers transcribed and coded the data. The authors and the five senior students coded and classified the data individually.

4. EMPIRICAL FINDINGS

In this part of the study, findings obtained through observations, in-depth interviews and focus group study are presented in two sections, firstly, as the stages of baggage movement in an airport, and, secondly a categorization of the causes for baggage access delays.

4.1. Stages of Baggage Movement in an Airport

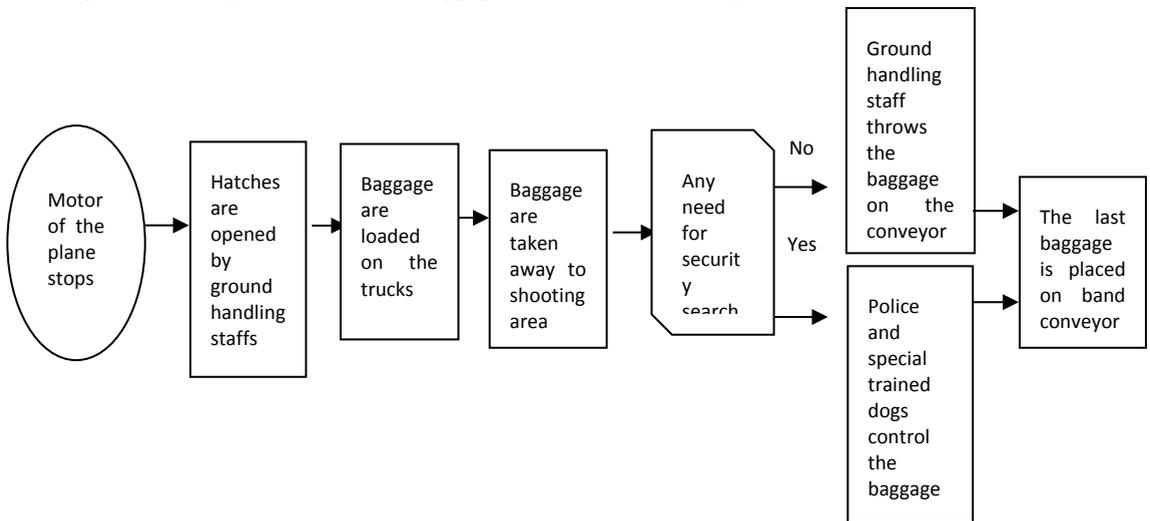
The stages of baggage movement in an airport can vary according to the airport management system; however, the basic stages are generally similar regardless of the system. Based on the observations and in-depth interviews, an overview of the stages of baggage movement in an airport is presented below (Figure 1). Additionally, in this study, information transfer related to the baggage is also specified.

When the plane lands, a message is sent to the airport's electronic system, which enables passengers to see all flight information from electronic boards located in front of the carousels and check-ins. Information is transferred from this system to flight management system. This allows managers to get real time information about baggage access time.

Information about flights is sent to flight information department. The baggage control department is responsible for issues related to baggage handling such as assigning baggage to carousels. Handling firms and carousels are determined according to their availability. Information about the point of departure, number of passengers and baggage are sent via electronic message to ground handling firms. Handling firms arrange their operational teams according to this information and the plane type. Before the plane lands, not only has the parking position (arranged 24 hours before landing) been arranged, but also unloading operations, power supply and handling services are determined. After the landing, it takes 4 minutes for a plane to reach the bridge. At this moment, the baggage access process is considered to have started.

The process starts with switching off the engine, and finishes when the last piece of baggage is placed on the band conveyor. After landing, hatches are opened and handling staff board the plane to take out the baggage using the mobile conveyor. The whole process can be considered as the time between the stopping of the engine and the placing of the last piece of baggage on the conveyor.

Figure 1. The Typical Process of Baggage Movement in an Airport



4.2. Categorization of the Causes for Long Baggage Access Times

As discussed in the methodology part, three main research methods are used in this study (in-depth interview, observation and focus group). These combined methods show that the factors affecting baggage access times are information flow, operations and process, staff, passengers, facility and equipment related problems (Table 1).

Information Flow: The main problem that increases baggage access time occurs due to inaccurate information flow from the airline company. The airline company is responsible for informing the airport operator about the amount of baggage and number of passengers. This is crucial to determine the conveyor and the handling equipment to be

used, the number of handling staff, and passport clerks, and to arrange the ground handling and other services. Therefore, inaccurate or incomplete information provided by the airline company may lead to an increase in the baggage access time. Additionally, information update delays in sudden flight changes also cause problematic occasions for baggage access.

Operations and Process Stages: Baggage access delays regarding to the flow of operations and process stages can derive from security and visa control, narcotic searches (for the inbound flights from the Netherlands and Middle Eastern countries) and passport control. These factors extend the baggage access time by postponing the passenger baggage pick-up from the conveyors. Unclaimed baggage creates baggage traffic on the conveyors and prevents the unloading of incoming baggage. Additionally, the frequency of flights (traffic) and simultaneous landing of planes can cause problems such as conveyor assignment problem, queues in passport and visa control, and insufficient equipment and staff for the amount of baggage.

Besides these, the number of operations performed by each individual ground handling firm is variable. Generally, baggage operations are executed by more than one firm, and firms do not all undertake the same number of operations. Based on the agreements, each ground handling firm provides service to specific airlines.

Baggage access time depends on the amount of baggage rather than the number of operations. The amount of baggage can differ according to plane types and sizes. Another problem is the stacked baggage. Due to the shape of the baggage, the baggage can be stacked on conveyors and cause delays.

Besides those, lack of legally enforceable process procedures prevents the construction of strong control mechanism for the services provided. Although there are informal agreements between airline companies and handling firms for maintaining the standards in operations, airline operators are not able to impose specific time limit on handling firms.

Facility and Equipment Related Problems: Facility and equipment related problems can also extend baggage access time. The equipments that are used in baggage unloading are carousels, cars and trolleys, band conveyor, mobile conveyor and unloading equipment to throw the baggage. The limited number of these equipments can cause delays. The amount of equipment used in baggage unloading depends on the ground handling service provider. Moreover, length of carousels, and the speed of band conveyor and vehicles can cause problems.

Hooded parking areas are beneficial for the passengers, enabling rapid disembarkation and reduced movement. However, baggage operations are not generally able to keep up with this speed. Hence, the passengers reach the conveyors earlier and wait longer for their baggage than those in the non-hooded areas. In addition to these, the design and structure of baggage reclaim area are important factors in baggage access time (Gatersleben and Weij, 1999; Norin, 2008).

The design of the claim area should be appropriate both for handling baggage and the free movement of passengers.

Table 1: The Causes of Long Baggage Access Times

Passenger	Facility & Equipment	Staff	Operations & Process	Information flow
Free shop visits of passengers before baggage claim	Limited amount of unloading equipment Low speed of band, conveyor and vehicles Length of carousels Improper design of baggage reclaim area Limited number of carousels, conveyors, cars and trolleys Hooded parking area situation	Limited number of passport officers Low staff performance Limited number of ground handling staff Inadequate education level of staff Non-compliance to rules and procedures	Large amount of baggage Narcotic searches The imbalance in the number of operations assigned to ground handling firms Obstructed (blocked) baggage Security, visa and passport control Number of flights and simultaneous landing Lack of legally enforceable process procedures	Delay in information updates Wrong or incomplete information

Passenger related problems: Some passenger related problems can also extend to baggage access time. For instance, some passengers directly go to the free shop after disembarkation instead of collecting their baggage. In this case, the unclaimed baggage occupies a place on the carousel, causing delays in baggage delivery. Because of this, ground handling staff can not deliver new baggage on to the band conveyor. To prevent this situation, passengers must be persuaded to take their baggage before visiting free shops.

Staff related problems: The limited number of passport clerks and ground handling personnel are considered as staff related problems. Additionally, staff tends not to follow the rules and procedures related to the loading and unloading of the plane. For instance, one of the most important procedures concerns the filling of fuel tanks. In most cases, fuel truck starts loading of the fuel before passengers disembark the plane and this can lead to serious security and timing problems.

Heavy working schedules and the unpredictable overtime need impact the staff performance negatively and decrease the speed of the operations. Furthermore, lack of staff training can lead to unexpected delays.

5. CONCLUSION

In this study, the main aim was to shed light to the causes of delays in baggage access in order to increase passenger satisfaction and service quality provided by airports. The findings of the study provide some insights which will contribute to the resolution of the mentioned problems.

The responsible bodies in baggage access are the airport operator and ground handling firms. Any deficiencies in the management processes extend baggage access times.

As all managers acknowledged, there are informal agreements between airline companies and handling firms for maintaining the standards in operations, but these are not legally enforceable. Furthermore, airline operators are not able to impose specific time limit on handling firms. Therefore, it is important to introduce strict agreements that limit the maximum operation time of the ground handling firms. Loading/discharging procedures should be specified, and a strong control mechanism should be created at airports.

The number of staff and handling equipments, and the working hour plans vary from one ground handling firm to another. These numbers can change according to the amount of baggages handled. Thus, the airport operator should balance the work load (the number of operations) equally among the ground handling firms.

Baggage handling is a complex and resource based operation that requires detailed planning and labor/equipment investment (Dresner, 2006). Thus, the majority of the problems can be solved through efficient and effective investment in technology and equipment. Especially, investment is needed in new technological equipment such as automated ramp systems (to improve the unloading of hatches), and mechanical unloading module and lifting system (to transfer the baggage to the conveyor belt in the unloading area). With the support of new technologies it is possible to decrease the baggage access time and damage rate. Furthermore, RFID (radio frequency identification) can be used to determine the amount of the baggage, and provide higher levels of security and speed in service. These technological investments, together with the standardization of software usage among the ground handling firms will also increase the flow of related information. According to the airport operator and managers of ground handling companies, communication and information related problems can also be addressed by the improvement of communication infrastructure, training of the personnel, job rotation and establishment of a “communication management” department within airports.

Employee performance can be improved by increasing the number of employees, scheduling the overtime work, improvement of information flow along the organization and creating social organizations. Thus, a decrease in the baggage access time and an increase in employee satisfaction can be achieved.

The reduction in waiting times will increase the customer satisfaction levels of the passengers. The findings of the study are also important for highlighting the importance of baggage access process as the last step at airports that the passengers are exposed to. Passenger satisfaction increases when the passenger experience is improved; passenger experience is improved when the requirements of the passenger are fully addressed. The passengers require secure, fast and high quality service before departure and after arrival.

As discussed, baggage access time (after arrival) is a significant factor in overall passenger satisfaction. Therefore, long waiting times for the baggage can create a negativity effect on the perception of the overall airport service quality.

As for future research, a survey with passengers or service providers can be conducted to reveal the impact of delayed baggage.

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