
Analysis on the Characteristics of Air Travel Behavior of Beijing-Tianjin-Hebei Air Passengers

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Abstract

On September 30, 2019, Beijing Daxing International Airport will be officially put into operation. Beijing will become another international metropolis in China with one city and two markets. At the same time, it is also one of the multi-airport areas in China. There will be major changes. In order to understand the characteristics of air passenger travel in the Beijing-Tianjin-Hebei region, we also made forward-looking research on the Beijing-Tianjin-Hebei region after the Beijing New Airport was put into use. This paper summarizes and analyzes the characteristics of airline passengers' travel, including passenger personal characteristics, travel characteristics, and airport and airline selection characteristics. In order to provide reference for the later research of the civil aviation industry in the Beijing-Tianjin-Hebei region. The survey results show that Beijing-Tianjin-Hebei air passengers are mainly enterprise employees and students. The number of passengers traveling for leisure tourism and business office is more than 88.45%. The airport is the largest in Beijing Capital International Airport, accounting for 65.35. %, the airline is mainly based on three major airlines, and its China Airlines has the largest proportion among the three major airlines, accounting for 42.86% of the total. At the same time, based on the passenger's investigation of airport and airline selection considerations, the main influencing factors affecting passenger air travel were analyzed.

Keywords

Beijing-Tianjin-Hebei region, questionnaire survey, passenger travel characteristics; multi-airport area.

1. Introduction

The Beijing-Tianjin-Hebei region is one of the multi-airport areas in China. There are currently nine civil airports operating in China. Among them, Beijing Capital International Airport has the largest throughput airport in China and is the main air passenger distribution center in East Asia. On September 30, 2019, Beijing Daxing International Airport will be officially put into operation. By then, Beijing will present a “one city, two games” pattern. At the same time, Beijing is one of the few cities in the world with two international hub airports [1], Beijing and Tianjin. Many airport areas will also usher in new changes.

The characteristics of air passenger travel characteristics reflect the unique attributes and basic rules formed by passengers traveling at an airport or a certain route. It is an important reference and basis for the adjustment of civil passenger transport development structure and improvement of services [2]. It mainly includes the basic characteristics of passengers such as age structure, occupational distribution, travel purpose and travel frequency, and the characteristics of airport travel, airline selection, land-side traffic selection and other modes of transportation [3]. The characteristics of air passenger travel are of

great significance to the passenger flow forecast, operation organization and strategy formulation in the civil aviation field in Beijing-Tianjin-Hebei region [4]. This paper is based on the analysis of the status of air passenger travel and the main factors affecting the travel and selection of air passengers in the Beijing-Tianjin-Hebei regional air passenger survey [5].

2. Questionnaire

There are currently nine civil airports operating in the Beijing-Tianjin-Hebei region, namely Beijing Capital International Airport(PEK), Beijing Nanyuan Airport(NAY), Tianjin Binhai International Airport(TSN), Shijiazhuang Zhengding International Airport(SJW), Tangshan Sannuhe Airport(TVS), Qinhuangdao Beidaihe International Airport(BPE), Zhangjiakou Ningyuan Airport(ZQZ), Handan Matou Airport (HDG). Chengde Puning Airport(CDE). The throughput of Beijing Capital International Airport accounts for more than half of the throughput of the Beijing- Tianjin-Hebei regional airport. To ease the passenger pressure of Beijing Capital International Airport and improve the efficiency of air passenger transportation in Beijing-Tianjin-Hebei region, the state decided to build Beijing Daxing International Airport, its positioning and Beijing. The Capital Airport is an international hub airport and will be officially put into operation on September 30, 2019.

For the Beijing-Tianjin-Hebei regional air passenger survey, the questionnaire was launched on July 1st, 2018. The questionnaire was set up on the Internet platform. The restrictions are: passengers who have traveled in the Beijing-Tianjin-Hebei region. The purpose of this survey is to analyze and summarize the current status and preferences of airline passengers in Beijing-Tianjin-Hebei region through surveys of Beijing-Tianjin-Hebei air passengers. Inductive analysis of the main influencing factors affecting air passenger travel, Beijing-Tianjin after the new airport is put into operation Provide a basis for the study of the new pattern of regional civil aviation. A total of 1,884 questionnaires were distributed and 855 valid questionnaires were returned, of which 658 were departing from Beijing-Tianjin-Hebei.

3. Air passenger travel characteristics analysis

3.1 Analysis of basic characteristics of passengers

(1) Gender distribution of passengers. According to a questionnaire survey of passengers departing from the Beijing-Tianjin-Hebei region, the gender distribution characteristics of passengers are more female air passengers than males, of which women account for 61.4% and men account for 38.6%.

(2) Age structure of passengers. According to the questionnaire survey, the passenger structure of Beijing-Tianjin-Hebei air transport is quite different, mainly concentrated in 18~40 years old, of which 18~29 years old accounted for the highest proportion, accounting for 46.05% of the total number, as shown in Table 1.

Table 1 Distribution of age structure of air passengers in Beijing-Tianjin-Hebei region

age	18~29	30-39	40-49	50-59	60 and above
Number of people	303	238	81	23	13
Proportion	46.05%	36.17%	12.31%	3.50%	1.98%

(3) The occupational distribution of passengers. According to the sample survey, the departure passengers of the Beijing-Tianjin-Hebei region are mainly enterprise employees, institutions and students, accounting for 55.32%, 16.57% and 14.44% respectively.

(4) Passenger income. According to the sample survey, the monthly income of airline passengers in the Beijing-Tianjin-Hebei region is basically below 10,000 yuan, of which the largest proportion is passengers with monthly income of 6000-10000, accounting for 35.71% of the total. As shown in Fig. 1. This is mainly due to the large proportion of employees and institutions in the passengers. The

proportion below 4,000 yuan is 18.24%. Due to the summer vacation during the survey period, there are more students.

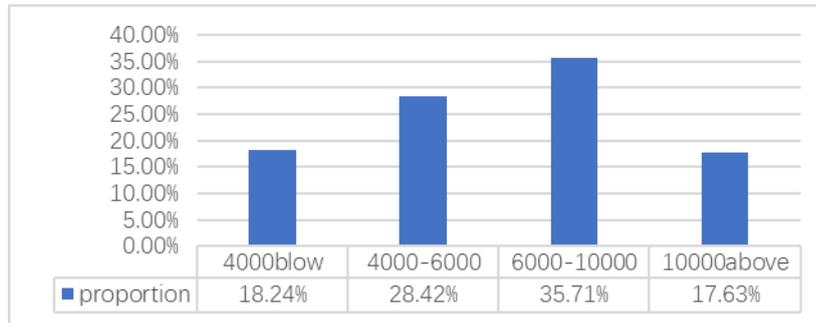


Fig. 1 Distribution of air passenger income in the Beijing-Tianjin-Hebei region

3.2 Air passenger travel characteristics

(1) Purpose of travel. Among the departing passengers in the Beijing-Tianjin-Hebei region, there are more air passengers for business and leisure travel. The two accounted for 88.45% of the total, of which leisure tourism accounted for 70.36% of the total, as shown in Fig. 2. The reason for the analysis is that during the summer vacation, the number of students and families travelling increased, and the number of air travels for leisure travel increased.

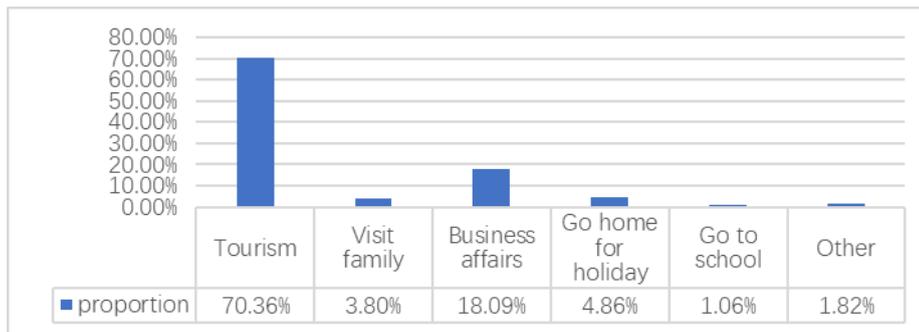


Fig. 2 Distribution of air passenger travel destinations in Beijing-Tianjin-Hebei region

(2) Travel frequency. Among the Beijing-Tianjin-Hebei region and travellers, the number of annual trips is mainly less than 5 times, of which 51.06% are below 3, as shown in Fig 3, more than half. From this analysis, the number of frequent passengers in the Beijing-Tianjin-Hebei region is relatively small, mainly for new passengers. Airports and airlines can develop personalized services accordingly.

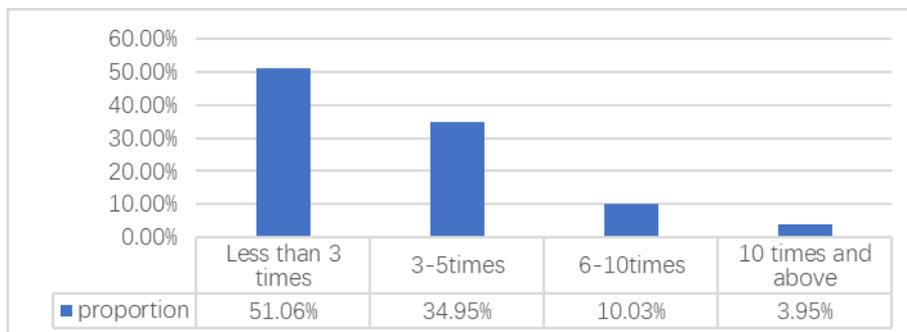


Fig. 3 Air passenger passenger frequency in Beijing-Tianjin-Hebei region

3.3 Air passenger passenger entity selection characteristics

(1) Passenger airport selection. In the survey of passenger departure airports in Beijing-Tianjin-Hebei region, the main airports selected by passengers are Beijing Capital Airport, Beijing Nanyuan Airport, Tianjin Binhai Airport and Shijiazhuang Zhengding Airport. The four airports accounted for 65.35%, 4.41% and 17.93%. And 10.03%. As shown in Fig 4. The proportion of Beijing Capital Airport has

reached 65.35%, which indicates that the entire Beijing-Tianjin-Hebei region air passengers mainly choose to travel to the Capital Airport.

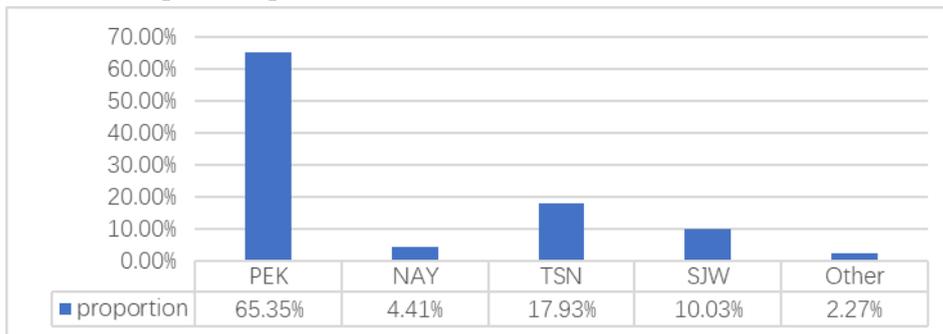


Fig. 4 Distribution of airport passenger departures in Beijing-Tianjin-Hebei region

(2) Investigation of the reasons for airport selection. While selecting the survey of the passenger airport, it also understands the factors affecting the passengers when they choose to leave the airport. The survey method is based on the impact degree score. The influencing factors are divided into five levels, namely, the maximum impact and the greater impact. General impact, slight impact and no impact, respectively, went to 5-1 points. That is, the greater the impact, the higher the score. The results of the survey are shown in Fig 5.

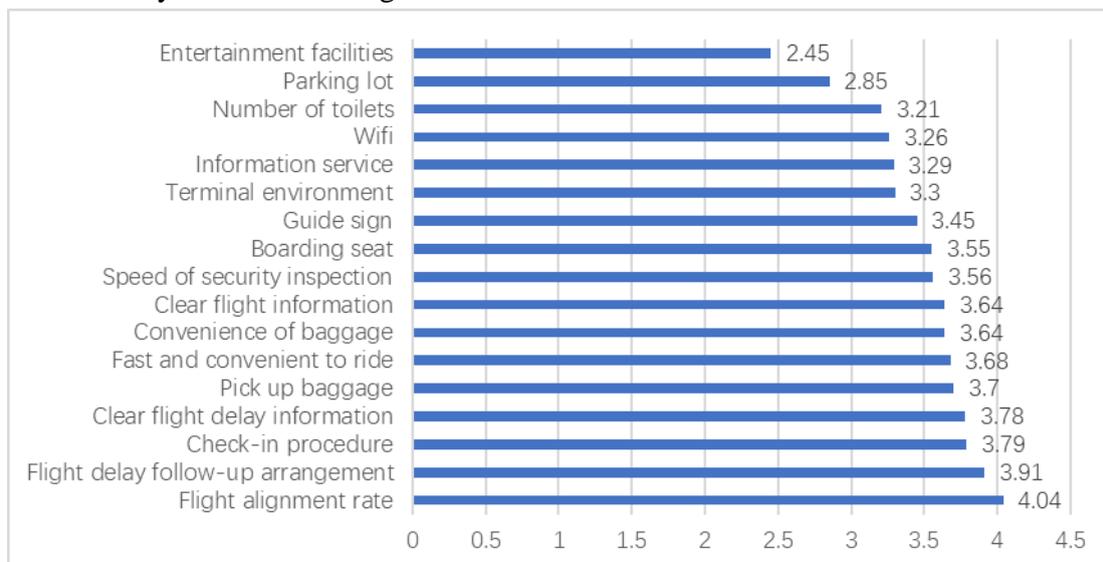


Fig. 5 Influencing factors of air passenger airport selection

It can be seen from the figure that the air passengers in the Beijing-Tianjin-Hebei region are most concerned about the punctuality rate of the airport when they choose at the airport, followed by the arrangement after the flight delay. This shows that air passengers pay most attention to the on-time and delay of airport flights when choosing an airport, including the airport's handling after delays, the convenience of airport procedures and service levels, and the least interesting airport entertainment facilities.

(3) Passenger airlines choose. In the survey of passenger airlines' choices, it was found that the main choices for air passengers in Beijing-Tianjin-Hebei region were the three major airlines, namely China International Airlines, Eastern Airlines and China Southern Airlines. The three companies accounted for 76.14 of the total. %, of which China International Airlines accounted for 42.86% of the total, as shown in Fig 6. From this analysis, the proportion of China International Airlines in the Beijing-Tianjin-Hebei civil aviation market is large.

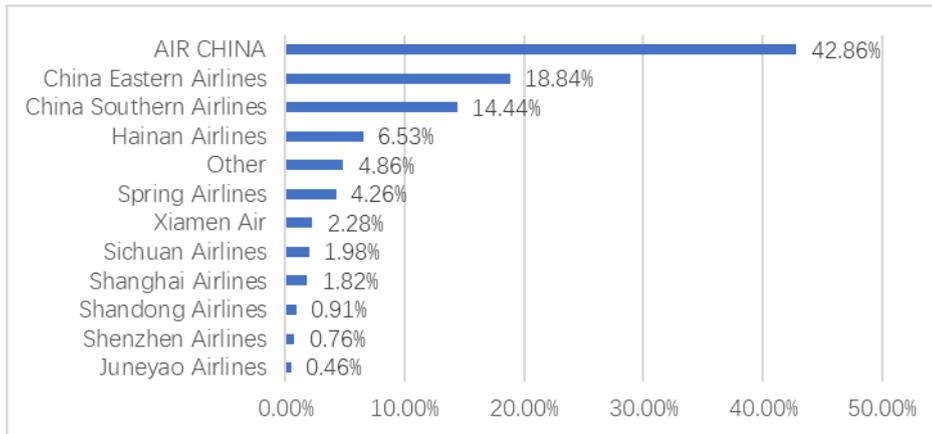


Fig. 6 Air passenger airlines choose distribution

(4) Airline selection reasons investigation. The survey method for the reasons for airline selection is consistent with the airport cause survey method, and the method of impact degree scoring is used. The results are shown in Fig. 7. As can be seen from the figure, passengers are most concerned about the flight fare in the choice of airlines, followed by the quality of the flight and the quality of the service of the airline. The most insensitive passengers are the quality of the flight.

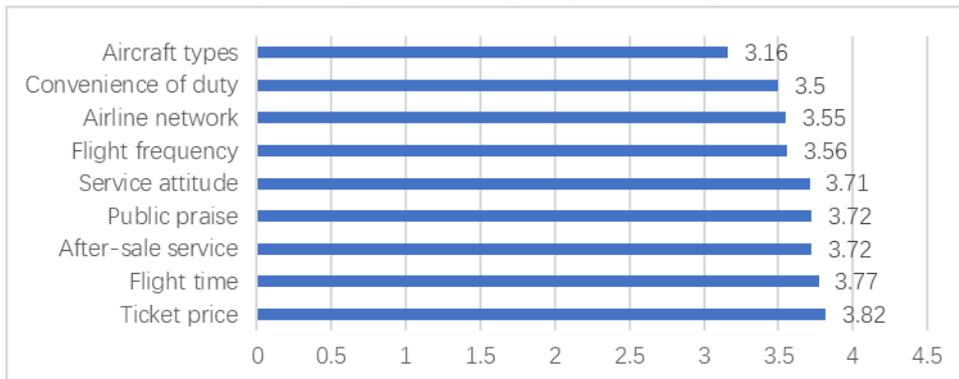


Fig. 7 Influencing factors of air passenger airline selection

(5) Landside traffic options. In addition to the airport and airlines, the traffic options and acceptable time for passengers arriving at the airport were also investigated. As shown in Fig 8 and Fig 9, the survey results show that passengers arriving at the airport mainly choose taxis and subways. The freedom of the car and the punctuality of the subway are not affected by traffic jams. Passengers prefer these two modes of transportation; in terms of passenger arrival time, most passengers choose to be below 3 hours, accounting for 96.51%, of which 1 hour to 2 The number of passengers in the hour is 57.45% of the total.

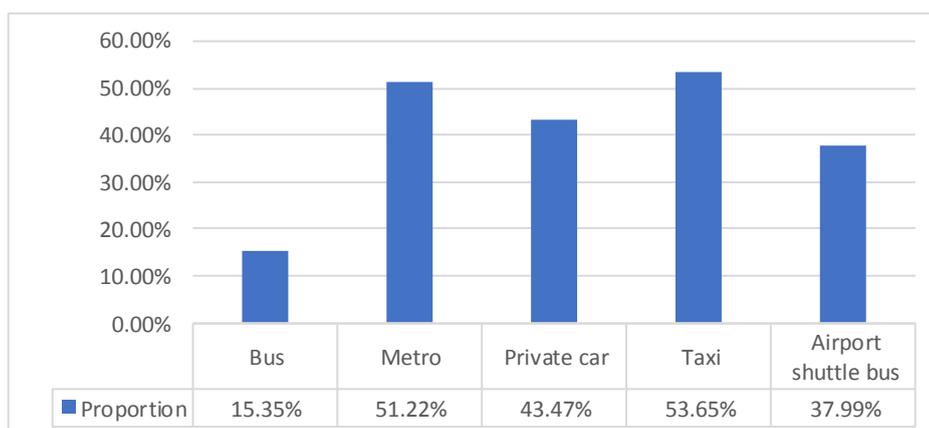


Fig. 8 Air passenger ground transportation mode selection

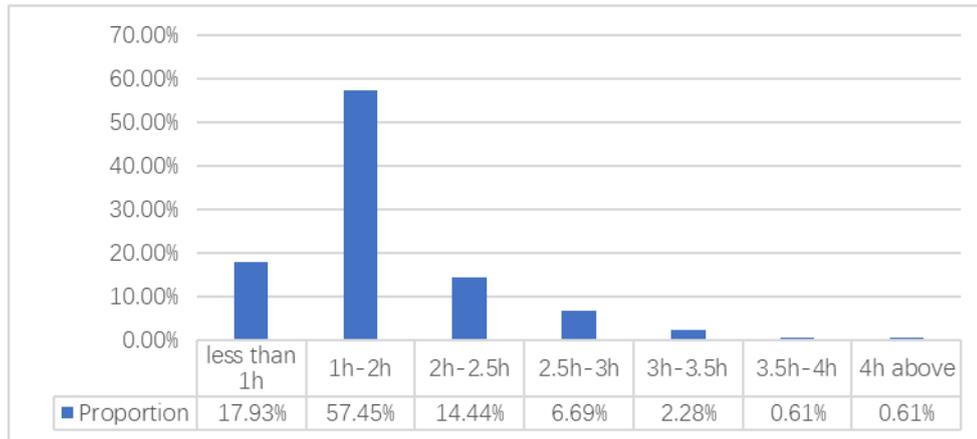


Fig. 9 Air passengers can accept ground transportation time

4. Conclusion

According to the above survey data, the Beijing-Tianjin-Hebei regional air passengers mainly focus on work groups and students, mainly business and leisure travel, and travel passengers' income is mostly above average. As the survey period coincided with the summer vacation, the number of air travellers who traveled for leisure and tourism increased, and the number of all leisure travellers increased slightly compared with business travellers. New passengers in the passenger group account for a large proportion, and the annual flight frequency is less than three. Among the nine civil airports in Beijing, Tianjin and Hebei, Beijing Capital International Airport has the largest number of passengers and the largest number of passengers. In the airport selection, the most important thing for passengers is the on-time rate of the flight. The time value is the most important for passengers. The three major airlines have an absolute advantage in the airlines, among which China International Airlines also accounts for the civil aviation market in Beijing, Tianjin and Hebei. Larger share; the main choice for air passengers arriving at the airport is subway and taxi, and the acceptable time is basically less than three hours. Based on this survey conclusion, the following suggestions can be made for the Beijing-Tianjin-Hebei airport area: (1) Personalized service. Since the passenger group is mainly business travelers and leisure travelers, airports and airlines can provide personalized services based on these two categories. The different attributes of the passengers provide corresponding services; (2) The post-arrangement coordination of the flight delays is carried out. Due to the wide range of issues on the punctuality, the problems are more complicated and it is more difficult to improve in a short period of time [6]. After the service work, the airport can coordinate the airlines to provide passengers with satisfactory post-delay services, alleviate the uneasiness and resistance of passengers due to flight delays, thereby improving the service level of airports and airlines. (3) Improve the land-side transportation network, reduce the time for passengers to arrive at the airport, and actively increase the time value of passengers.

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