

An Investigation into the Choice of Ground Access to Airport Using Multinomial Logit Modelling Case Study: Imam Khomeini International Airport

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1. Introduction

In this study, the behavior of air travelers to reach the Imam Khomeini international airport in Tehran was explored. The methodology of study is according to travelers purpose of trip (business or personal travel) in choosing between six modes of transport, including subway, bus, carpooling, taxi, private car – to park and private car – to get off. Car – to park means parking the car in the airport parking until the return journey and private car – to get off means delivering passengers to the airport by relatives or acquaintances (parking in the airport parking is not required). The main purpose of this research is to identify effective and important factors that influence air travelers who use Imam Khomeini airport to choose how to reach there with the primary aim of planning and servicing.

In this study, firstly, the most important parameters influencing the selection of air travelers have been

identified, and then a questionnaire which included the parameters of passenger load, inertia (indicating that the passengers who have come to the airport with a method of transportation, the extent to which they would like to use the same one in the future), and so on has been designed. Secondly, the passengers have been asked about the methods of accessing Imam Khomeini airport according to their purpose of the trip (business or personal travel), and after collecting related information, the logit model has been used to analyze.

2. Data collection

According to the organized schedules, about 270 questionnaires for three days in the summer of 2014 were prepared for questioning passengers while they were leaving the Imam Khomeini airport in an orderly and completely randomized method in a face-to-face interview, using the predefined data.

3. Data analysis

The data collected by the SPSS software was analyzed, and the results of the analysis of the variables used in the final model were reported.

Table 1. The distribution of Car ownership passengers (respondents) in Imam Khomeini Airport

Car ownership	frequency	percent	Cumulative percent
0	22	8.6	8.6
1 car	115	44.7	53.3
2 car	87	33.9	87.2
More than 2 car	33	12.8	100
sum	257	100	
valid	0	0	
total	257	100	

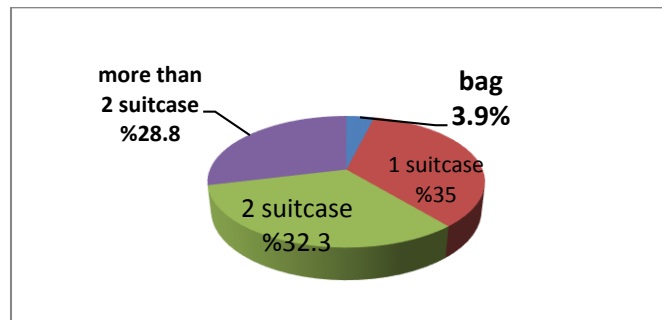


Fig. 1. The distribution of baggage passengers (respondents) in Imam Khomeini Airport

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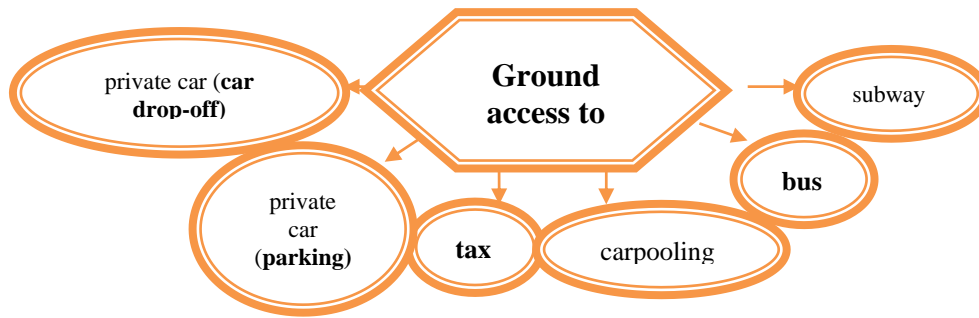


Fig. 2. The proposed model structure

4. Proposed model structure

The following structure has been used to model the choice of the access to the Imam Khomeini airport multinomial logit.

Metro services (such as providing luggage load, reliability, and reduced travel time), they can be inclined to use the subway.

5. Conclusion

In this research, the behavior of air travelers in choosing between six modes of transport, including subway, bus, carpooling, taxi, private car (to park), and private car (to get off) to reach the Imam Khomeini international airport in Tehran has been investigated by means of polynomial logit model. The input of the model mentioned above is based on collected data from 3 days of a survey conducted in the summer of 2014. The corresponding surveys have been conducted in the form of a pre-defined presentation in the form of an interview at Imam Khomeini Airport. The number of completed questionnaires was 257, and the data validation was 34%. One of the most important results of this research is the significance of the inertia variable, which shows that passengers who have arrived at Imam Khomeini international airport with public transportation have again been reluctant to use public transportation in the future. Also, as expected, the two factors of income and per capita ownership of vehicles were meaningful and their results indicated that the willingness of travelers who own more than 2 cars (12.8% of the total number of passengers) in their families to use the subway decreased and the passengers with less than 15 million rials (10.5% of the total number of passengers) were more likely to choose subway and private car (to park). The large percentage of Imam Khomeini airport passengers enjoy high income and car ownership. About 90% of travelers have an income of over 15 million rials per month and about 92% of them have at least 1 car in their family. It is notable that these travelers were reluctant to use the subway. Therefore, it can be concluded that by increasing travel time and the cost of private transport (like increasing the cost of parking) and providing airport passengers with much higher