

Transfer Passengers' Perceptions of Airport Service Quality: A Case Study of Incheon International Airport

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Abstract

This paper seeks to investigate transfer passenger's perception of airport service quality and its influence on value, satisfaction, airport image, and passenger behavior. To test the relationships between the variables, Structural Equation modeling is used to analyze survey data collected from 331 transfer passengers at Incheon International Airport. The results show that airport service quality would raise the level of transfer passengers' satisfaction, value perceptions, and airport image formation. In addition, airport service quality has an indirect impact on transfer passenger behavior by means of value, satisfaction, and airport image.

Keywords: Airport service quality, Transfer passenger, Structural equation modeling

1. Introduction

Airport passengers can be divided into different groups such as departing, arriving and transfer passengers. Each of these groups will have a different set of needs and wishes when they use different facilities at the airport. For example, transfer passengers have discretionary time waiting and they will likely to value their experience in airport facilities differently compared to origin and destination passengers.(Anderson et al., 2008) The needs of transfer passengers are quite different from those of origin and destination passengers.(de Barros et al., 2007) After deregulation and privatization, many large international airports have served as hubs for transfer passengers therefore the importance of transfer passengers have been increased. Thus, understanding and catering for the specific needs of transfer passengers are fundamental in achieving growth in today's competitive airport environment.

Here the effect of airport service quality on the transfer passenger traffic of Incheon International Airport (IIA) is explored by examining a conceptual model that considers airport service quality as well as a number of other factors that simultaneously influence transfer passenger's behavior.

2. Conceptual background

2.1 Service quality

Service quality is customer's long-term, cognitive evaluations of a firm's service delivery. Customers compare what they expect to get with what they actually receive during the postpurchase stage of the service purchase process. Before customers purchase a service, they have an expectation about service quality that is based on individual needs, past experiences, word-of-mouth recommendations, and a service provider's advertising. After buying and consuming the service, customers compare its expected quality with what they actually received.(Lovelock & Wright, 1999) A frequently used and highly debated measure of service quality is the SERVQUAL scale. According to its developers, SERVQUAL is a diagnostic tool that uncovers a firm's broad weaknesses and strengths in the area of service quality. The SERVQUAL instrument is based on five service quality dimensions that were obtained through extensive focus group interviews with consumers. The five dimensions include tangibles, reliability, responsiveness, assurance, and empathy, and they provide the basic skeleton underlying service quality.(Hoffman & Bateson, 2001)

Delivering high service quality has been recognized as the most efficient way of ensuring that a company's offerings are uniquely positioned in a market filled with lookalike competitive offerings.(Parasuraman et al., 1991) Improving the quality of manufactured goods has become a major strategy for both establishing efficient, smoothly running operations and increasing demanding higher and higher quality.(Hoffman & Bateson, 2001) Providing high quality service and ensuring customer satisfaction are widely recognized as important factors leading to the success of the various service industries.(Stevens et al., 1995) It is commonly believed that higher service quality can lead to a customer's higher overall satisfaction and subsequently to positive behavioral intentions. Like other service industries, service quality is an important issue in the airport management. The overall airport's experience perceived and recollected by international travellers may have a significant impact in promoting or discouraging future international tourism and business activities in the corresponding country. Thus, the evaluation of passenger satisfaction levels on airport services has become an important issue for airport management.(Yeh & Kuo, 2003)

2.2 Customer satisfaction and loyalty

Customers experience various level of satisfaction or dissatisfaction after each service experience according to the extent to which their expectations were met or exceeded. Because satisfaction is an emotional state, their postpurchase reactions can involve anger, dissatisfaction, irritation, neutrality, pleasure, or delight.(Lovelock & Wright, 1999) The importance of customer satisfaction cannot be overstated. Without customers the service firm has no reason to exist. Every service business needs to proactively define and measure customer satisfaction. Companies who command high customer satisfaction ratings seem to have the ability to insulate themselves from competitive pressures, particularly price competition.(Hoffman & Bateson, 2001)

Past research studies have suggested that perceptions of service quality affect feelings of satisfaction, which then affect loyalty and post-purchase behaviors.(Anderson, 1993) Satisfaction is perceived as being an important mediator of store loyalty drivers.(Taylor & Baker, 1994) Customer satisfaction has always been considered an essential business goal because it was assumed that satisfied customers would buy more.(Oliver, 1999) Recently, the evaluation of passenger satisfaction levels on airport services has become an important issue for airport management to understand their consumers and in designing their marketing strategies. (Yeh & Kuo, 2003)

2.3 Service value and image

The general definition of value is a consumer's perception of the subjective worth of some activity or object considering all net benefits and costs of consumption.(Babin et al., 1994) Service value has been identified as an important variable of customer satisfaction and behavioral intentions.(McDougall & Levesque, 2000)

Corporate image is described as the overall impression made on the minds of the public about a firm.(Barich & Kotler, 1991) Image is a perception of an organization held in consumer memory which influences the perception of the operation of the company (Grönroos, 1988) also it is another important factor in the overall service evaluation.(Gummesson & Grönroos, 1988) Image is based on all of a customer's consumption experiences, and service quality is representative of these consumption experiences. Hence, the perception of service quality directly affects the perception of image. (Aydin & Ozer, 2005)

2.4 The trend of Incheon International Airport (IIA)

The trends of de-regulation and privatization in air transportation over the past three decades have led to increasingly globalized hub-and-spoke networks of airports. This trend has also been observed in many large international airports including IIA, which serve as hubs for transfer passengers between international flights.(de Barros et al., 2007) The largest airport in South Korea, IIA is one of the largest and busiest in the world and it has been consecutively rated as the best airport in the world by the Airports Council International (ACI) since 2005. One of the significant strategies of IIA is to be an international hub in Northeast Asia therefore transfer passengers are one of the most important factors for airport management. Since 2005, the number of transfer passengers at IIA has increased an average of 10.5% and the airport devises a strategy to increase the proportion of transfer passengers up to 25% by 2010 (Figure 1). Because the airport tries to increase transfer rate and passengers to be a hub airport, understanding the needs of transfer passengers has become a significant aspect for IIA.

< Insert Figure 1 here >

To increase the number of transfer passengers by delivering better services, airport managers need to understand passenger perceptions of airport service quality. To investigate transfer passenger's perception of airport service quality and its influence, the hypotheses to be tested empirically are shown as arrows. All the paths are hypothesized to be positive (Table 2).

< Insert Figure 2 here >

3. Research Methodology

The survey was conducted at the airside of IIA in November 2009. The questionnaire was translated into English, Chinese, and Japanese since majority of transfer passengers at IIA is an English, Chinese, and Japanese-speaking people. A total of 400 questionnaires were distributed to transfer passengers at the transfer passenger lounges, transfer hotels, and gates. Some 360 completed questionnaires were collected, but 29 questionnaires were incomplete, leaving 331 samples for data analysis. Survey samples are shown well distributed in terms of nationality.

The design of the questionnaire is based on multiple-item measurement scales. The measurement items are designed for the airport and the statements are measured on a 5-point Likert-type scale. Five constructs are included in the hypotheses that are tested. They are: airport service quality, value, transfer passenger satisfaction, airport image, and transfer passenger behavior.

SERVQUAL is a survey instrument that purports to measure the quality of service rendered by institution along five dimensions: reliability, assurance, tangibles, empathy and responsiveness. (Parasuraman et al., 1985) The transfer passengers' perceptions of airport service quality are quite various and do not seem to fit any single existing service quality model such as SERVQUAL. This is because SERVQUAL instrument does not address other important aspects of airport service such as walking distance, walking facilities, and duty free shops. Therefore, this study evaluates airport service quality based on SERVQUAL but has developed specific questions and dimensions that are suitable for airports by modifying and adding new items important.

Airport service quality is measured by 22 measurement items listed in Table 1. Exploratory factor analysis is used to determine the dimension of airport service quality. The overall pattern of rotated factor loadings suggests a three-dimensional solution (Table 2). Airport service quality is measured by three observed variables, namely X1, X2, X3. Each of these variables is calculated as the mean score of respondents' ratings of each item in the each factor. Reliability of measures is assessed using Cronbach's alpha; the resultant alpha is more than 0.7 that implying a good level of reliability.

< Insert Table 1 here >

< Insert Table 2 here >

4. Data analysis and results

To assess the fit of the model, Goodness-of-Fit Index (GFI), Adjusted Goodness-of-fit index (AGFI), Normed fit index (NFI), Root mean square residual (RMR), and Root mean square error of approximation (RMSEA) are used in this paper (Table 3). The various fitness indexes for the model indicate that the theoretical model indicates an excellent fit. The proposed conceptual model explains a substantial amount of variance in key variables. The model explains 77.8% of variance in transfer passenger behavior and 65.7% of variance in airport image. The model also explains 73.9% of variance in value and 82.1% of variance in transfer passenger satisfaction. The conceptual model is tenable in that the amount of variance explained in most variables exhibits a high practical significance.

< Insert Figure 3 here >

All the hypothesized relationships are statistically significant ($p < 0.05$). Airport service quality is found to have a significant positive effect on value, satisfaction, and airport image. The result of figure 3 indicates that airport service quality is a key driver of transfer passenger's value perception, level of satisfaction, and airport image formation. The analysis also shows that airport service quality has a positive influence on transfer passenger behavior through value, satisfaction, and airport image. The analysis indicates that airport service quality influences transfer passengers' reuse intentions and the intention to recommend the airport to other transfer passengers indirectly by means of value, satisfaction, and airport image. Value and airport image are each found to have a direct effect on transfer passenger satisfaction and behavior. This finding implies that if transfer passengers think they are getting high value from the airport services they receive, they are more likely to be satisfied, to use the airport again, and to recommend the airport to other transfer passengers. This result also implies that transfer passengers who form a positive overall impression of the airport are more likely to use the airport again and recommend the airport to others for transfer. Transfer passenger satisfaction is found to have a positive effect on transfer passenger behavior. This suggests that transfer passengers satisfied by airport services are more likely to reuse the airport and recommend the airport to others.

5. Conclusion

This paper has presented a conceptual model of airport service quality with value, transfer passenger satisfaction, airport image, and transfer passenger behavior. The analysis shows that airport service quality is found to have a direct or an indirect effect on value, satisfaction, airport image, and passenger behavior. The results from a study of transfer passengers imply a need for IIA to develop transfer passenger-focused services to increase transfer

passengers. Failure to provide quality services to transfer passengers may damage the level of satisfaction, value perceptions, and the formation of airport image and cause negative impact on transfer passenger behavior.

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References

- Anderson, E., W. Sullivan, M. W. (1993). The antecedents and consequences of customer satisfaction for firms. *Marketing Science*. 12(2), 125-143, doi:10.1287/mksc.12.2.125, <http://dx.doi.org/10.1287/mksc.12.2.125>
- Aydin, S. Ozer, G. (2005). The analysis of antecedents of customer loyalty in Turkish mobile telecommunication market. *European Journal of Marketing*. 39(7/8), 910-925, doi:10.1108/03090560510601833, <http://dx.doi.org/10.1108/03090560510601833>
- Babin, B.J., Darden, W.R., & Griffin, M. (1994). Work and/or fun Measuring hedonic and utilitarian shopping value. *Journal of Consumer Research*. 20(4), 644-656, doi:10.1086/209376, <http://dx.doi.org/10.1086/209376>
- Barich, H. Kotler, P. (1991). A framework for marketing image management. *Sloan Management Review*. 32(2), 94-104.
- Correia, A.R., Wirasinghe, S.C., & de Barros, A.G. (2008). A global index for level of service evaluation at airport. *Transportation Research Part E*. 44(4), 607-620, doi:10.1016/j.tre.2007.05.009, <http://dx.doi.org/10.1016/j.tre.2007.05.009>
- de Barros, A.G., Somasundaraswaran, A.K., & Wirasinghe, S.C. (2007). Evaluation of level of service for transfer passengers at airports. *Journal of Air Transport Management*. 13(5), 293-298.
- Grönroos, C. (1988). Service quality: the six criteria of good perceived service quality. *Rev Bus*. 9(3), 10-13.
- Gummesson, E. Grönroos, C. (1988). *Quality of services: lessons from the product sector. Add value to your service*. Chicago: American Marketing Association.
- Horonjeff, R. McKelvey, F.X. (1994). *Planning and Design of Airport*. (4th ed.). New York: McGraw-Hill.
- Hoffman, K. D., Bateson John E. G. (2001). *Essentials of services marketing: concepts, strategies, & cases*. (2nd ed.). South-Western: Thomson Learning, (Chapter 12-13).
- Incheon International Airport, (2009). Incheon International Airport annual report. Incheon, pp.14-15: [http://www.airport.kr/iacms/pageWork.iaa?_scode=C2405020402\(March 3,2010](http://www.airport.kr/iacms/pageWork.iaa?_scode=C2405020402(March 3,2010)
- Lovelock, Christopher H. Wright, Lauren K. (1999). *Principles of service marketing and management*. New Jersey: Prentice-Hall, (Chapter 5).
- McDougall, G.H. Levesque, T. (2000). Customer satisfaction with services: putting perceived value into the equation. *Journal of Service Marketing*. 14(5), 392-410, doi:10.1108/08876040010340937, <http://dx.doi.org/10.1108/08876040010340937>
- Oliver, R. L. (1999). Whence consumer loyalty. *Journal of Marketing*. 63, 33-44, doi:10.2307/1252099, <http://dx.doi.org/10.2307/1252099>
- Parasuraman, A., Zeithaml, V.A., & Berry, L.L. (1985). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*. 64, 12-40.
- Parasuraman, A., Zeithaml, V.A., & Berry, L.L. (1991). Refinement and reassessment of the SERVQUAL scale. *Journal of Retailing*. 64(4), 420-450.
- Stevens, P., Knutson, B., & Patton, M. (1995). A tool for measuring service quality in restaurants. *Cornell Hotel and Restaurant Administration Quarterly*, 36(2), 56-60, doi:10.1016/0010-8804(95)93844-K, [http://dx.doi.org/10.1016/0010-8804\(95\)93844-K](http://dx.doi.org/10.1016/0010-8804(95)93844-K)
- Taylor, S.A. Baker, T.L. (1994). An assessment of the relationship between service quality and customer satisfaction in the formation of consumers' purchase intentions. *Journal of Retailing*. 70(2), 163-178, doi:10.1016/0022-4359(94)90013-2, [http://dx.doi.org/10.1016/0022-4359\(94\)90013-2](http://dx.doi.org/10.1016/0022-4359(94)90013-2)
- Yeh, C.H. Kuo, Y.L. (2003). Evaluating passenger services of Asia-Pacific international airports. *Transportation Research Part E*. 39(1), 35-48, doi:10.1016/S1366-5545(02)00017-0, [http://dx.doi.org/10.1016/S1366-5545\(02\)00017-0](http://dx.doi.org/10.1016/S1366-5545(02)00017-0)

Table 1. Airport service quality measurement items

Measures	Variables
Service Quality	Transfer terminal's modernity facilities and cleanliness
	Transfer terminal's atmosphere/comfort
	Enough available seats in transfer area
	Flight information display
	On-time performance
	Giving service without delay
	Employees who are willing to help passengers
	Employees who sincere interest in solving problems
	Reliability of employees
	Safety of transfer terminal
	Courtesy of employees
	Employees who have the knowledge to answer about transfer passengers' questions
	Giving transfer passengers personal attention
	Understanding transfer passengers' needs
	Walking distance/walking time
	Walking facilities (escalators/elevators/moving walkways)
	Restaurants and bars quality
	Restaurants and bars variety/price
	Duty free shops' price compared to other countries
	Duty free shops' availability of goods/variety
	Children's play areas
	Medicine/pharmacy

The table describes the list of 22 items of service quality measurement.

Table 2. Results of factor analysis

Factor	Variables	Factor loadings	Eigenvalue	Cummulative % of variance
Factor 1 (X1)	Courtesy of employees	.753	10.873	49.424
	Safety of transfer terminal	.743		
	Reliability of employees	.725		
	Employees who sincere interest in solving problems	.725		
	Employees who are willing to help passengers	.718		
	Employees who have the knowledge to answer about transfer passengers' questions	.707		
	Giving transfer passengers personal attention	.707		
	Giving service without delay	.671		
	On-time performance	.656		
	Understanding transfer passengers' needs	.633		
	Flight information display	.516		
Factor 2 (X2)	Children's play areas	.796	1.923	58.166
	Restaurants and Bars variety/price	.787		
	Duty free shops' price compared to other countries	.786		
	Medicine/pharmacy	.781		
	Duty free shops' availability of goods/variety	.724		
	Restaurants and bars quality	.667		
	Walking distance/walking time	.600		
Factor 3 (X3)	Transfer terminal's atmosphere/comfort	.724	1.097	63.152
	Transfer terminal's modernity facilities and cleanliness	.711		
	Enough available seats in transfer area	.585		
	Walking facilities (escalators/elevators/moving walkways)	.505		

As a result of exploratory factor analysis, the factor loadings suggest a three-dimensional solution. Airport service quality is measured by three observed variables, namely X1, X2, X3. Factor loading were used to assign a name to each factor.

Table 3. Goodness-of-fit measures

Goodness-of-fit measure	Value
Chi-square value(χ^2)	137.936
Degrees of freedom(DF)	46
Chi-square value(χ^2)/degrees of freedom(DF)	2.99
P-value	0.000
Goodness-of-fit index(GFI)	0.936
Adjusted goodness-of-fit index(AGFI)	0.891
Normed fit index(NFI)	0.956
Root mean square residual(RMR)	0.024
Root mean square error of approximation(RMSEA)	0.078

The SEM analysis provided evidence of a good model fit. Given the satisfactory fit of the model, the estimated structural coefficients were then examined to evaluate the hypotheses.



Figure 1. Transfer passenger traffic at Incheon International Airport

Incheon International Airport (IIA), which is considered the international gateway to South Korea. IIA has shown a rate of increasing transfer passenger traffic. According to the results of the annual report of IIA, the average daily transfer passengers were revealed that 3,050,000 transfer passengers used IIA in 2005, 3,360,000 transfer passengers used that in 2006, 3,790,000 transfer passengers used that in 2007 and passengers using transfer service of IIA are 4,420,000 passengers.

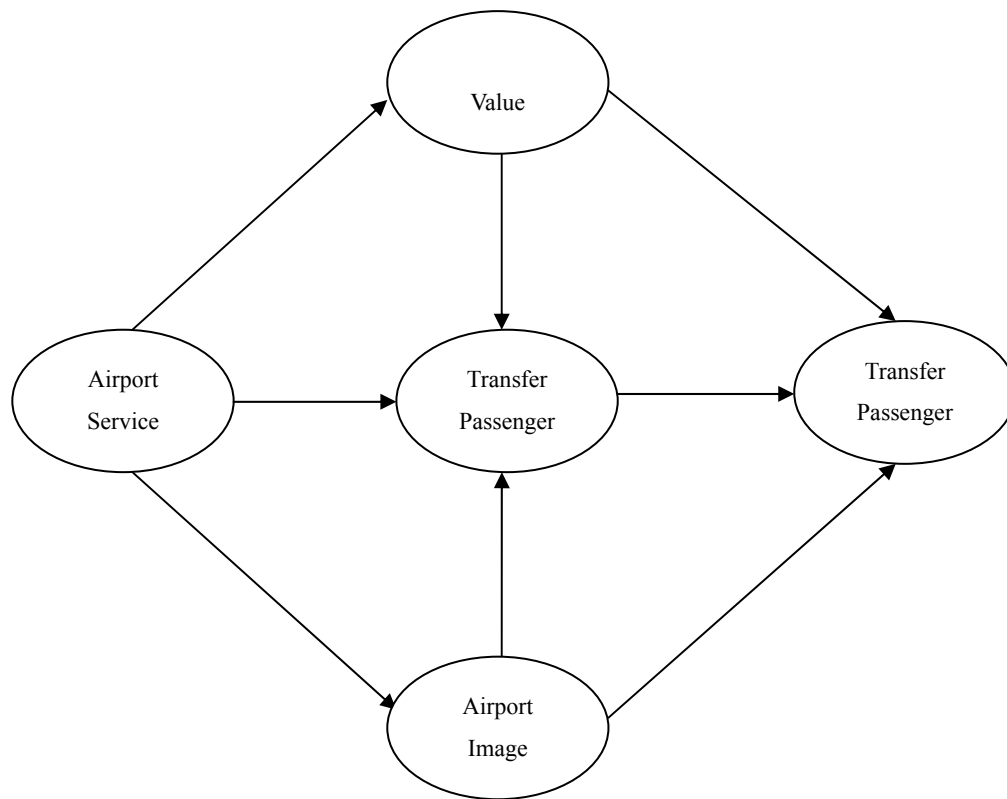


Figure 2. The conceptual model

To investigate transfer passenger's perception of airport service quality and its influence, the conceptual model has looked at airport service quality, value, transfer passenger satisfaction, airport image, and transfer passenger behavior. This paper proposes the following hypothesis:

Hypothesis 1, airport service quality is positively related to transfer passenger satisfaction.

Hypothesis 2, airport service quality is positively related to value.

Hypothesis 3, airport service quality is positively related to airport image.

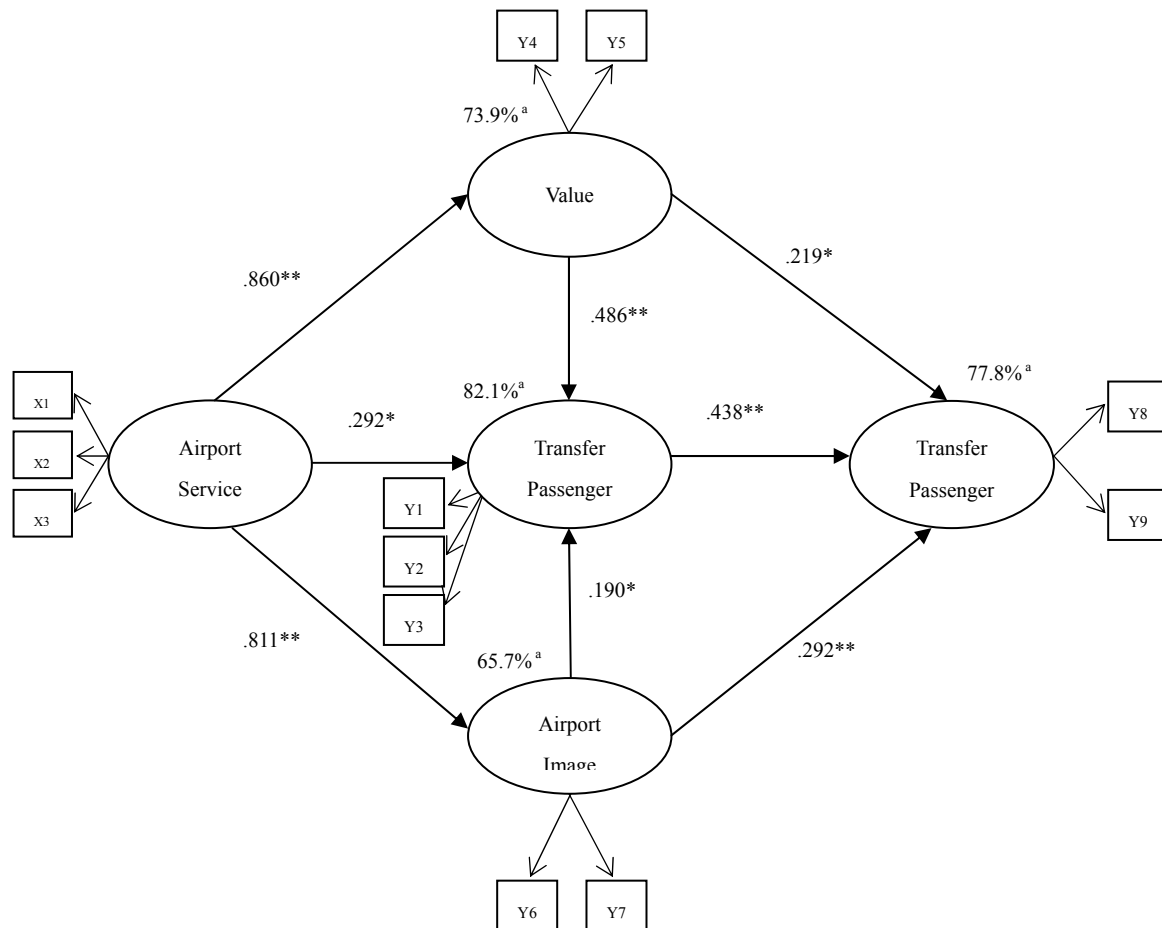
Hypothesis 4, value is positively related to transfer passenger satisfaction.

Hypothesis 5, airport is positively related to transfer passenger satisfaction.

Hypothesis 6, transfer passenger satisfaction is positively related to transfer passenger behavior.

Hypothesis 7, value is positively related to transfer passenger behavior.

Hypothesis 8, airport image is positively related to transfer passenger behavior.



^a The amount of variance explained

* $p < 0.05$, ** $p < 0.001$ level

Figure 3. Results of SEM analysis

The airport service quality, value, transfer passenger satisfaction, and airport image are each found to have a direct or indirect effect on transfer passenger behavior.

Hypothesis 1, airport service quality was found to be a significant factor in transfer passenger satisfaction ($\gamma=0.292$, $\rho < 0.05$). Thus, H_1 was supported at the 0.05 level.

Hypothesis 2, airport service quality was found to be a significant factor in value ($\gamma=0.860$, $\rho < 0.001$). Thus, H_2 was supported at the 0.001 level.

Hypothesis 3, airport service quality was found to be a significant factor in airport image ($\gamma=0.811$, $\rho < 0.001$). Thus, H_3 was supported at the 0.001 level.

Hypothesis 4, value was found to be a significant factor in transfer passenger satisfaction ($\gamma=0.486$, $\rho < 0.001$). Thus, H_4 was supported at the 0.001 level.

Hypothesis 5, airport image was found to be a significant factor in transfer passenger satisfaction ($\gamma=0.190$, $\rho < 0.05$). Thus, H_5 was supported at the 0.05 level.

Hypothesis 6, transfer passenger satisfaction was found to be a significant factor in transfer passenger behavior ($\gamma=0.438$, $\rho < 0.001$). Thus, H_6 was supported at the 0.001 level.

Hypothesis 7, value was found to be a significant factor in transfer passenger behavior ($\gamma=0.219$, $\rho < 0.05$). Thus, H_7 was supported at the 0.05 level.

Hypothesis 8, airport image was found to be a significant factor in transfer passenger behavior ($\gamma=0.292$, $\rho < 0.001$). Thus, H_8 was supported at the 0.001 level.