

IV-207 Consciousness of Drivers Using Urban Expressway During Peak Time and Their Change Decision Related to Additional Fee

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1. Introduction

The purpose of this investigation is to study the consciousness of drivers using Hanshin Expressway during peak time between 7:00 A.M. and 9:00 A.M., and study the effect of additional fee on the change decision of drivers. This investigation could be worth studying to reduce the traffic volume.

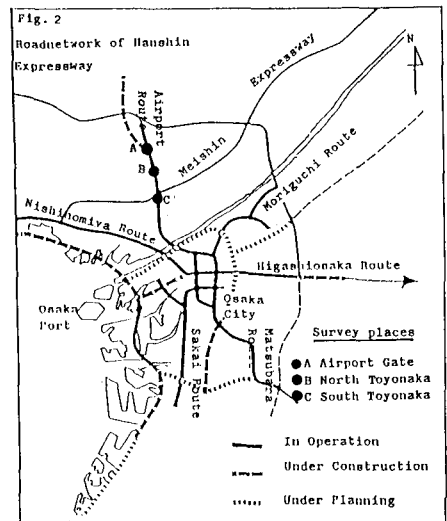
2. Data Collection Procedures

The items of data collected by asking drivers of vehicles is shown in Fig. 1.

The survey was carried out on Tuesday, January 20th, 1987 between 7:00 A.M. and 9:00 A.M. at three locations of Airport route on Hanshin Expressway as shown in Fig. 2. The survey sheets were delivered for drivers by hand while the answers sheets were received by mail with free mail charges until February 28th, 1987. The total answers represent 18.1% from total delivered sheets. During delivering sheets of survey the traffic vehicles count was carried out to determine the number of passenger cars including taxis, trucks, light vans, and others.

- Q1. Origin-Destination trips
 Q2. Trip distance in km and time in minutes
 Q3. Leaving gate and time spent on Hanshin Exp.
 Q4. Type of vehicles and ownership state
 Q5. Trip purposes Q6. Number of Persons/Veh.
 Q7. Fuel type Q8. Paying type of fee
 Q9. Who pay the fee Q10. What is your opinion about existing fee Q11. Maximum limit of fee under smooth traffic condition
 Q12. Are you agree to raise the fee to reduce the congestion
 Q13. During peak time, if the fee is raised by 50¥, 100¥, 150¥, 200¥, and 250¥, what is your decision Q14. Sex, Age, Income

Fig. 1 Items of survey sheet



3. Characteristics of Drivers and Car Usages

The characteristics of drivers and car usages based on the answers of drivers is shown in Fig. 3. In this figure, 86.9% from total vehicles are passenger cars while 13% are trucks and light van vehicles. Also the work and business trips represent the main part of the trip purposes. The figure shows the number of persons/vehicle where the average value is 1.33 persons/vehicle.

4. Consciousness of Drivers Related to Toll Rate

The consciousness of drivers related to toll rate is shown in Fig. 4. The consciousness of drivers related to existing fee conditions, maximum limit of fee under smooth traffic conditions through Hanshin Expressway, and raising fee opinion in order to reduce the vehicles congestion are described. The average maximum limit of toll rate is 502¥ based on the drivers proposals, while the existing toll rate is 400¥.

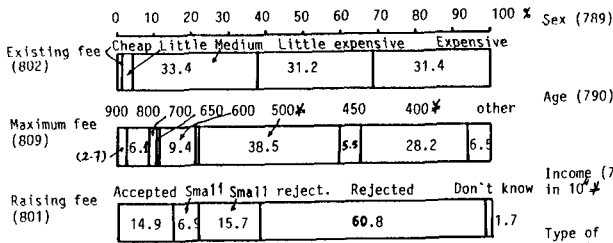


Fig. 4 Consciousness of drivers related to toll rate

5. Change Decision of Drivers Related to Additional Fee

The change decision distribution of drivers related to additional fee cases of 50¥, 100¥, 150¥, 200¥, and 250¥ and trip purposes is shown in Table 1. This table shows the reduction ratios of vehicles number related to additional fee and trip purposes. The reduction ratio of work trips is always more than business trips.

For example, in case of additional fee 50¥, the reduction of work trips is 36.6% while this ratio is 26.7% of business trips. The change decision of drivers related to additional fee 100¥ and Income of drivers is shown in Fig. 5. The tendency of change decision is small. Then, the Income of drivers is not important factor of their change decision. Also the reduction ratios related to additional fee 50¥, 150¥, 200¥, 250¥ and Income of drivers are obtained.

6. Conclusion

This study has attempted to describe the characteristics of drivers and car usages of Hanshin Expressway. Also the consciousness of drivers is clarified. Change decision of drivers and reduction ratios are obtained.

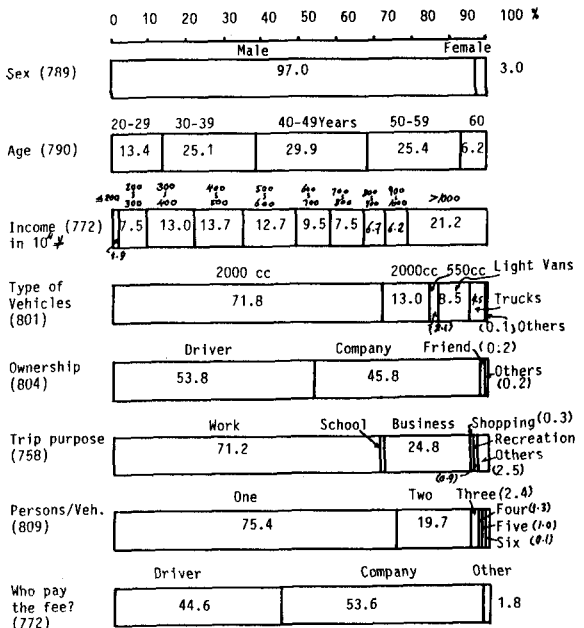


Fig. 3 Characteristics of drivers and car usages

Table 1 Change decision distribution of drivers related to additional fee and trip purposes

Change Decision of Drivers	Additional Fee		50¥		100¥		150¥		200¥		250¥	
	Trip Purposes		Work %	Business %	Work %	Business %	Work %	Business %	Work %	Business %	Work %	Business %
Use Hanshin at the Same Time			61.2	72.5	48.5	61.2	26.8	43.2	21.6	38.8	18.9	35.6
Use it Before 7:00 A.M.			17.6	15.3	20.5	21.5	22.7	25.0	22.0	19.8	22.0	20.9
Use it After 9:00 A.M.			2.5	1.2	3.3	2.6	4.0	3.8	4.1	4.6	3.6	4.6
Use it by Carpool			0.8	1.2	0.4	0.4	0.4	0.0	0.3	0.8	0.2	0.0
Use Other Routes			9.5	6.4	13.9	9.2	25.4	20.0	27.3	26.3	27.6	28.0
Use Other Modes			6.2	2.6	12.0	3.8	18.4	5.9	22.4	7.6	24.8	8.4
Others			0.4	0.4	0.1	0.0	2.3	2.1	2.3	2.1	2.9	2.5
Don't know			1.8	0.4	1.6	1.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Vehicles			515	171	487	159	484	157	482	157	477	157
Total Reduction (%)			36.6	26.7	50.1	37.5	70.9	54.7	76.1	59.1	78.2	61.9

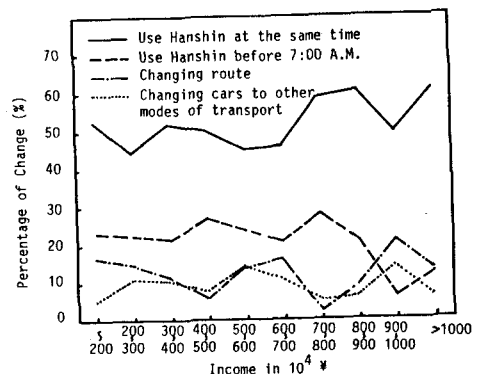


Fig. 5 Change decision of drivers related to additional fee of 100¥ and Income