KOUTSUGAKU KENKYU
Annual Report on Transportation Economics 2001

<Regulatory Reform and Transport Policy>

THE JAPAN SOCIETY OF TRANSPORTATION ECONOMICS
CONTENTS

1. International Symposium・Special Theme

< Regulatory Reform and Transport Policy >

(1) Deregulation and Liberalization of Air Transport : Focus on the Northeast Asian Air Transport System
   Tae Hoon OUM
   Hideki URAKAMI

(2) Regulation Policy for Surface Transportation in Europe
   John PRESTON

(3) The Transport Sector in an Era of Environmental Management
   Kenneth A. SMALL

(4) Road Transport and Environmental Policies in Japan
   Yoshitsugu KANEMOTO
   Katsuhito HASUIKE
   Toru FUJIWARA

II. General Theme

(1) A Time Series Analysis of Price Sensitivity for Airfare between Tokyo and Sapporo
   Kunihiro KISHI
   Keiichi SATOH

(2) Partnership Strategies with Foreign Carriers by Czech, Hungarian and Polish Airlines for Regulatory Reforms and Privatization in the Era of Global Alliances
   Masao TSUJIMOTO

(3) The Evolution of Airports in Japan—from Terminal Demand to Hub-Demand Type and Its impact on Local Aviation Market
   Tadahisa WADA

(4) Cost-Benefit Analysis Revisited – Does “Network” Matter?
   Yukihiro KIDOKORO

(5) Shipper’s Port and Shipping Line Selection Behavior in China: A Discrete Choice Analysis
   Piyush TIWARI
   Hidekazu ITOH
   Masayuki DOI
Tetsu KAWAKAMI
Masayuki DOI
Piyush TIWARI

(7) ‘Direction of ASEAN cross border transportation system under the regional integration
Kazuharu OIDE

(8) On the Effectiveness of the Logistics Subsidiary in the Enterprise Group Management: An Empirical Analysis Using the Consolidated Financial Data
OH, Yong-Sik

(9) Are Telecommunications and Transportation Substitutable?
Akihiro NAKAMURA

(10) Change of Productivity and its Factors in the Japanese Trucking Industry
Jun MIZUTANI

(11) Evaluation of Congestion Fatigue by Hedonic Approach: The Case of Commuter Train Lines in Tokyo
Hisaki YAMAGA

(12) A Comparative Research on Economic Measurements to Abate Negative Impacts on Local Environment by Automobiles: Fuel Tax and Road Pricing
Akira OKADA

(13) The Effect of Excess Tax on Diesel Oil for Heavy Goods Vehicle
Mariko FUTAMURA

(14) Vehicle-Related-Tax-Reform as an Incentive for Environmental Policy
Katsuhito HASUIKE

Keiichi OGAWA
Takamasu AKIYAMA

(16) An Attempt of Short-Term Business Forecasting by Transportation Data
Kazuhiro OHTA
Yasuhiro OKUMURA
Hitoshi ASAOKA
3. Summary

4. JSTE Award Winners
SUMMARY

II. General Theme

(1) A Time Series Analysis of Price Sensitivity for Airfare between Tokyo and Sapporo

Kunihiro KISHI and Keiichi SATOH
Hokkaido University

After new airline company 'AIR DO' flew between Tokyo and Sapporo, existing airline companies have also applied various discount fare. Passengers can select services as they like according to their situations.

In this study, three questionnaire surveys were made in June, 1998 and January, 1999 and June, 2000. We analyzed how passengers changed their evaluation of airline services. And Kishi’s Logit PSM(KLP) that is improved from Price Sensitivity Measurement(PSM) as an evaluation model pf airfare, is examined its reliability and stability.

(2) Partnership Strategies with Foreign Carriers by Czech, Hungarian and Polish Airlines for Regulatory Reforms and Privatization in the Era of Global Alliances

Masao TSUJIMOTO
Waseda University

The author deals with the partnership strategies of three Ventral European carriers (Czech, Hungarian and Polish Airlines) in the era of so-called Global Alliances by focusing on the necessity of multi-dimensional alliances with foreign capitals (mainly Western European carriers) because the strategies are expected to strengthen their core-competence as well as to overcome the socialist legacies of lack of capitals, business knowledge and world-wide networks.

(3) The Evolution of Airports in Japan—from Terminal Demand to Hub-Demand Type and Its impact on Local Aviation Market

Tadahisa WADA
Sapporo International University

The main focus of this study is on the question of which airports in Japan are likely to attract more passengers, following the recent deregulation of the Japanese aviation markets, thereby becoming the main gateway hub. Put another way, under the deregulated aviation market, it is told the local aviation markets will be damaged and the worse case is anticipated the fairly large part of local aviation network system will be closed. However, on the contrary, this study has come to the conclusion that lacking of hub airport in Japan had been depressing the domestic aviation demand, local aviation demand in particular.

Therefore, further liberalizing airports will be expected to lead to explosive expansion of domestic aviation demand, which Japan have never been experienced before.

A case study of Hokkaido region—the Northern part of Japan—is carefully examined throughout this study.
(4) Cost-Benefit Analysis Revisited – Does “Network” Matter?

Yukihiro KIDOKORO
Center for Spatial Information Science, University of Tokyo

We develop a benefit estimation method, which explicitly takes networks into account. Our analysis shows that for any networks, however complex they may be, the benefits of a decrease in cost or an increase in an capacity at a node can be calculated as the sum of the change in consumer surplus regarding network services through the node at which the policies are implemented, and a change in the net congestion externality regarding network services through the nodes at which the net congestion externality changes.

This result demonstrates that the usual benefit-estimation method is valid even if we take networks into account and that we do not have to consider additional benefits.

Applying the results, we pin down the problems in current benefit-estimation methods in Japan.

(5) Shipper’s Port and Shipping Line Selection Behavior in China: A Discrete Choice Analysis

Piyush TIWARI, Hidekazu ITOH and Masayuki DOI
University of Tsukuba

Maritime transportation decisions of shippers are crucial for policy formulation related to ports or shipping lines. Shippers’ selection of port for expert or goods is dependent on the location of the shipper, own preference of shipping line services, port and other facilities offered by ports. In this paper, we model port & shipping line choice behavior of shippers in China, using a shipper level database obtained from a survey of containerized cargo shippers for 1998. We use a discrete choice model where each shipper faces a choice of ten alternatives designed on the basis of shipping lines and port combinations and make its decision depending on various shipper and port characteristic. The result indicate that distance of shipper from port, number of ship calls and routes, and efficiency of port infrastructure play important role.


Tetsu KAWAKAMI, Masayuki DOI and Piyush TIWARI
University of Tsukuba

This paper analyzes the impacts of China’s trade liberalization, especially removal of tariff and non-tariff barriers, on her macro economy and port sector by applying a CGE model. The results show that trade liberalization drastically increases the production of the port sector since the total amount of trade increases and require increasing cargo handling demand. However, the output and GNP for the country report only a little increase due to the income loss to the increased import of consumer and intermediate goods. These findings suggest that while China would enjoy a certain rate reduction, and other policy measures are at the same time urged.
(7) Direction of ASEAN cross border transportation system under the regional integration

Kazuharu OIDE
Nittsu Research Center, Inc

In recent years, ASEAN countries have been making efforts to simplify the cross border transportation system in their region. Following the conclusion of agreement about transit cargo in 1998 “ASEAN Framework Agreement on the Facilitation of Goods in Transit”, the agreement about between 2 countries transportation “ASEAN Framework Agreement on the Facilitation of Inter-state transportation” is now in the negotiation stage to fulfill for these agreements, execution of duty guarantee system same as EU countries.

(8) On the Effectiveness of the Logistics Subsidiary in the Enterprise Group Management-An Empirical Analysis Using the Consolidated Financial Data-

OH, Yong-Sik
Kobe University

We took up the problem of the logistics management structure in the enterprise group, on the assumption of the expansion of the analytic view to the logistics subsidiary, and attempted an empirical analysis through the extraction of a structural element of the outcomes of the logistics activities in this article.

Being seen from the result of the empirical analysis is that a negative result continues by the Function-integration variable composed by the sales composition. On the other hand, effective evidence was obtained in the Group-integration variable. As for it, the result of improving the asset productivity was at least obtained, and there was found the positive tendency at consolidated inventory turnover rate.

(9) Are Telecommunications and Transportation Substitutable?

Akihiro NAKAMURA
Institute for Posts and Telecommunications Policy
Ministry of Public Management, Home Affairs, Posts and Telecommunications

The purpose of this paper is to investigate substitution of telecommunications for transportation. For this purpose, at first, we build up the theoretical hypothesis: ‘the elasticity of substitution between travel and telecommunications increase between them with more detailed data than those in previous studies. The result of our empirical analysis supports the above theoretical hypothesis.
(10) Change of Productivity and its Factors in the Japanese Trucking Industry

Jun MIZUTANI
Osaka City University

It is said that the trucking industry is labor intensive because about a half of total cost is a labor cost. Despite a rapid increase as ten times in nominal wage of trucking industry between 1965 and 1998, its fare level has increased at only twice. It suggests that the productivity in trucking companies have largely improved.

Trucking companies have succeeded in improving their productivity thanks to the increase of road infrastructure and better facilities. Additionally they have earned money by providing more value added services like ‘Just in Time’ service. However, as the market which trucking companies face is enough competitive, most of the fruit in enhanced productivity has gone for shipper's surplus and profitability of trucking companies has not been improved.

(11) Evaluation of Congestion Fatigue by Hedonic Approach: The Case of Commuter Train Lines in Tokyo

Hisaki YAMAGA
University of Tsukuba

Congestion rate of Japanese commuter trains is an index of commuters’ accessibility and their fatigue of commuting. Using this relation, we empirically examine to which extent housing rent reflects this fatigue, after controlling for other regional and housing characteristics. For this purpose, we interpret congestion rate variable as environment variable of commuting and introduce this variable of congestion rate into housing rent function directly. And we estimate this housing rent function by different functional forms.

(12) A Comparative Research on Economic Measurements to Abate Negative Impacts on Local Environment by Automobiles: Fuel Tax and Road Pricing

Akira OKADA
Chuo University

This paper examines how fuel tax and road pricing would effect to abate negative impacts on local environment by automobiles.

Using the generalized cost function including fuel cost, I point out what the optimal level of fuel tax should be and that fuel tax has a tendency to become inefficient under fluctuated trip demand. Next, I simulate the negative impacts on local environment from motor vehicles by utilizing computer simulation program and conduct a comparative research between fuel tax and road pricing. As a result, fuel tax policy also has some effects to mitigate the negative impacts on local environment that are not so smaller than road pricing has. In conclusion, this study presents the policy implication that we need to seek possibility to implement fuel tax program to abate the adverse impacts on local environment by automobiles.
(13) The Effect of Excess Tax on Diesel Oil for Heavy Goods Vehicle

Mariko FUTAMURA
Aichi University

This paper focuses on the energy consumption of road freight transport (RFT). The emission from RFT is one of the important reasons of global warming and we need to reduce the emission. In this paper, we assume the excess tax on the diesel oil will be introduced and examine the effect on the diesel oil demand. We find that the elasticity of the diesel oil demand is not so high, it's about 0.05-0.07. If we use excess tax only as means for the emission reduction, the tax rate will be very high. When we introduce the excess tax for diesel fuel, we should carefully decide the rate and other supplemental policies.

(14) Vehicle-Related-Tax-Reform as an Incentive for Environmental Policy

Katsuhito HASUIKE
Nomura Research Institute,Ltd.

Although 'green' tax have been applied on 2000 to let the[ emission of vehicles reduced, it must be inefficient because it has an effect that the reduction of the tax rate for low emission vehicles causes the increase of the numbers and the total miles of the vehicles. First, this paper shows this effect with the numerical model using CES utility function. Second, same model and some welfare analysis show the effectiveness of the fuel tax. Third, the regional difference of consumption characteristic shows that 'green' tax raises the contradiction that it makes the long-distance-driver to drive more.


Keiichi OGAWA and Takamasa AKIYAMA
Gifu University

Many economical considerations between congestion and price have been done. The practical road pricing techniques have discussed as well. In this study, a traffic simulation model is used to calculate congestion price on urban expressway. The average cost function and the social marginal cost function are estimated from the observed data on Osaka-Sakai route in Hanshin Expressway using traffic simulation model. The standard value of congestion price, social surplus and social benefit are estimated as well. In addition, the influence of introduction of congestion pricing is counted as a congestion volume on urban expressway. These results would show that the congestion pricing works effectively on urban expressway.
An Attempt of Short-Term Business Forecasting by Transportation Data
Kazuhiro OHTA, Senshu University
Yasuhiro OKUMURA, Mitsubishi Research Institute
Hitoshi ASAOKA, Mitsubishi Research Institute

Demands for transportation are derived from demands for principal goods and services that directly benefit consumers and producers. It is common that transportation demands are forecasted, based on data of economic activity level. In reverse, this paper examines the possibility of business forecasting by transportation data. In order words, this paper regards transportation activity level as an explanatory variable of economic activity, the dependent variable. To be specific, using monthly transportation activity data, this paper proposes the Diffusion Index for short-term business forecasting. Also, this paper examines the performance of this Index, and concludes that this Index has almost same performance as the official Diffusion Index.

Feasibility Study of Beijing-Shanghai High-speed Railway Project in China
Kiyoharu TAKAGI, Japan Railway Technical Service
Keiichi SATOH, Hokkaido University

This paper states the feasibility study of Beijing-Shanghai high-speed railway project in China which its construction is scheduled at the beginning of 21 century.
The main items are mentioned below.
1. Outline of Beijing-Shanghai high-speed railway project
2. Forecast of traffic volume
3. Economic and Financial analysis
4. Verification
It is clearly made that this project has huge feasibility as same as Tokaido Shinaknsen.

Masahide DAIGO
Kansai Gaidai University

Since a scheme of vertical separation has been applied to railway industry under railway act of 1986, entrants often enter to railway markets as train operating companies and pay charges to access bottleneck facilities of incumbents in Japan. But most of access charges are not based on market condition. So, we should replace those charges with that grounded on economic theories. And a result of an analysis shows that ECPR, Baumol-Sidak-style pricing rule, is a more useful theory for decision of pricing level than TELRIC, a rule applied in telecommunication markets. Then, I apply ECPR to a Japan Freight Railway Company, estimate levels of access pricing and its effect, and suggest that this rule is feasible to railway markets.