Policy Simulation Based on Airport Demand Management Policy and the Market Entry of Low-Cost Carriers(LCCs)

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(Key words) Airport Planning, Low Cost Carriers (LCC)

1. Introduction

Under current circumstances the tight capacity in high-demand airports rises up to the surface, it is now becoming highly required to develop a simulation method in order to evaluate the airport demand management policy (slot limitation restrictions, aircraft bans and tax changes) reflecting the domestic aviation market and the entry of Low Cost Carriers(LCCs). For that purpose, we have enhanced and developed such a method and simulated the effect of airport demand management policy and the market entry of LCCs.

2. Enhancing the existing domestic aviation market model

We have enhanced the existing domestic aviation market model, which combined the Cournot Nash Equilibrium model and the flight allocation model, in order to consider the competitive situation with other transport modes such as trains. Then we simulated and analyzed the changes in passenger demands, average flight fares and the number of flights by policy alternatives between three multiple airports region: capital region to Kansai area, capital regions to North Kyushu area, and Kansai area to North Kyushu area. Consequently, we estimated the policy which can trigger desirable airfare deductions and effectiveness from the flight passenger's change of route and rise in total utility level.

3. Developing a method of simulating air transport demand changes when low cost carriers (LCCs) enter

We have developed a method of simulating air transport demand changes when low cost carriers (LCCs) enter into the domestic aviation services based on the Bertrand Nash Equilibrium. Consequently, we analyzed the changes in passenger demands, average flight fares and the number of flights on three major routes: capital region to Kansai area, capital regions to North Kyushu area, and Kansai area to North Kyushu area. The changes are estimated to be significantly different among the routes. Shown below is an example of the case between Kansai area and North Kyushu area. Our simulation result suggests that there would be found little reaction from existing Full Service Airlines (FSAs) though LCCs' airfares would be reduced 10 to 20% when supposed that one of the existing FSAs was substituted by an LCC whose unit cost was around the half of existing FSAs.

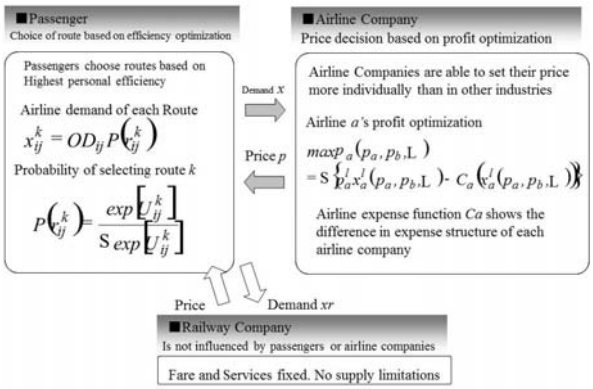

Figure 4: Summary Model of Analysis of Fare Competition

Fig. A proposed method of simulating air transport demand changes when low cost carriers (LCCs) entry

4. Closing remarks

We plan to further enhance the model and conduct an empirical analysis on the changes in domestic civil aviation market by the market entry of the LCCs.

【Reference】 Technical Note of NILIM No.694 and Proceedings of Infrastructure Planning Vol.46 (137) and (139)