

論文 / 著書情報
Article / Book Information

題目(和文)	民営化空港の市場支配力濫用と容量不足に対する施策の評価
Title(English)	Assessment of countermeasures against the abuse of market power and capacity deficiency of privatized airports
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出典(和文)	学位:博士(学術), 学位授与機関:東京工業大学, 報告番号:甲第12018号, 授与年月日:2021年3月26日, 学位の種別:課程博士, 審査員:花岡 伸也,朝倉 康夫,屋井 鉄雄,室町 泰徳,阿部 直也,大西 正光
Citation(English)	Degree:Doctor (Academic), Conferring organization: Tokyo Institute of Technology, Report number:甲第12018号, Conferred date:2021/3/26, Degree Type:Course doctor, Examiner:,,,,,
学位種別(和文)	博士論文
Category(English)	Doctoral Thesis
種別(和文)	論文要旨
Type(English)	Summary

(博士課程)
Doctoral Program

論文要旨

THESIS SUMMARY

系・コース： Department of, Graduate major in	融合理工学 地球環境共創	系 コース	申請学位 (専攻分野)： Academic Degree Requested	博士 Doctor of	(学術)
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要旨 (英文 800 語程度)

Thesis Summary (approx.800 English Words)

Airports are seeking structural changes, such as privatization, to meet and satisfy the increasing demand. On the one hand, there are open issues on whether privatization can stimulate the capacity investment which is the ultimate countermeasure against capacity shortage. On the other hand, privatization raises the concern regarding the abuse of market power. Based on the background, the objectives of the thesis are, first, assessing the plausibility of the introduction of terminal competition as an alternative countermeasure against the abuse of market power; second, figuring out the relationship between privatization and the investment decisions from some new perspectives.

We first investigate the effect of terminal competition on the pricing and social surplus. We define several business models to characterize the organizational structures of the airport before and after the introduction of terminal competition. Comparing the equilibrium outcomes in each business model, we find that, in most cases, having competing terminals can neither lower the prices nor enhance the social surplus if the operation of the terminal and airfield facilities are not completely separated in the existing business model, whether or not airlines have the freedom to change base terminal in response to the prices. The complementarity between the airfield and terminal service, which is originally internalized by the joint operation, will become a negative effect that cannot be offset even by a strong degree of substitution between terminals, if the two services are provided respectively by independent operators. In contrast, if the operation of the two sections has been completely separated in the existing business model, or the airfield operator can be strictly regulated, having competing terminals can result in a higher social surplus, as it will not increase the negative complementary effect. Instead, it creates a duopoly of substitute goods that can offset the complementary effect.

Next, we analyze the bi-projects investment problem at an airport. Adopting a real-option model, we obtain the optimal rule of the timings for the investment in capacity expansion project and the investment in cost reduction project. We also estimate the loss due to the suboptimal investment. Numerical results suggest that the decision-maker who places a higher premium on social surplus always tends to invest earlier in both projects. Other factors that stimulate an earlier investment include a lower cross-price effect, a greater total number of airlines, a higher drift, and a lower volatility in demand. The optimal scales of projects are more sensitive to the change in drift and volatility rather than the change in other factors. When the composition of the objective function changes, the pattern of the change in optimal timing differs by project. The loss due to NPV-based investment is much greater than that caused by the adoption of the deterministic model, and its change with the change in the composition of the objective function can have a mountain-shaped pattern, where the minimum can be reached when specific conditions are met.

Finally, we investigate the relationship between the privatization decisions and the investment decisions of an airport, and the effect of various factors on the relationship. We consider two scenarios differing in the availability of governmental subsidiary to the investment. We find that the optimal capacity volume does not necessarily decline as the private share increases, if the governmental subsidiary is available. If the governmental subsidiary is unavailable, three clear-cut regions of the investment decisions with regard to the private share can be observed: If the private share is low, no expansion will be carried out; if the private share is moderate, a gap-filling expansion will be carried out; if the private share is high, the expansion will not only fill the current capacity gap, but also leave some vacant capacity preparing for the future demand growth. Maximum aggregated social surplus can be achieved by privatizing a certain share which is just consistent with the value of one of the two breakpoints that connect two adjacent regions, while which breakpoint can maximize the aggregated social surplus depends on the timing of the privatization.

Some findings of this thesis might have policy implications. The results regarding the effect of terminal competition indicate that it cannot work as an alternative to the regular regulation to restrain the abuse of market power, and a respective privatization of airport facilities should be avoided. The results of the bi-project investment problem suggest that the regulatory adjustment of the timings, which aims to enhance social surplus, should be enacted in different rule for different type of project. The results regarding the effect of airport privatization on the capacity expansion imply that the optimal share to privatize in terms of aggregated social surplus can change as the timing for privatization change, and there is a trade-off between the social surplus within the airport and the spill-over social benefit (capacity) in the case of an early privatization.

備考：論文要旨は、和文 2000 字と英文 300 語を 1 部ずつ提出するか、もしくは英文 800 語を 1 部提出してください。