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COMPETITION COMMITTEE****Non-price Effects of Mergers - Note by Korea****6 June 2018**

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More documents related to this discussion can be found at www.oecd.org/daf/competition/non-price-effects-of-mergers.htm.

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1. Introduction

1. The term 'Non-price effects' refers to changes in features of goods and services other than prices as outcomes of competition and rivalry. In addition to changes in features, changes in variety of goods and services, and innovative activities are also generally understood as non-price effects caused by competition.

2. Recently, competition authorities are actively discussing that not only 'price effects' but also 'non-price effects' should be taken into consideration when reviewing mergers. This changes came from the perception that with the emergence of the digital economy, rapid technological innovation, and changes in the competitive landscape, now companies' strategic variables of competition are not limited to price and also include various non-price dimensions such as service, variety, quality, and innovation.

3. In Korea, considering the importance of non-price effects in reviewing mergers, 'the Guidelines for the Combination of Enterprises Review' stipulates that such effects should be taken into account when assessing the anti-competitive effects of a merger case. To be more specific, the II. 6 of the Guidelines indicates that the anti-competitive effects of a merger case may result not only in an increased price but also in changes in non-prices dimensions including quality of a product, innovative activities and consumer choices.

4. The following briefly explains the implications of the non-price effects in the antitrust area and why it is necessary to explicitly quantify the non-price effects in merger review. In addition, it introduces a case where the Korea Fair Trade Commission (hereinafter referred to as 'KFTC') quantified the non-price effects and applied the results in practice when assessing the efficiency-enhancing effects of Joint Venture (hereinafter referred to as 'JV').

2. The Necessity of Considering Non-Price Effects in Merger Review

5. Although analysis of the non-price effects in the antitrust case is becoming more important, there have been not many cases where the non-price effects were explicitly considered when assessing the anti-competitive effects of mergers. This shows that the explicit consideration of non-price effects in merger review is not a simple task.

6. The analysis of the non-price effects is not easy because of its subjectivity and measurement difficulties. In general, quality itself is a concept that encompasses all the multi-dimensional properties, and measurement is not easy because individual consumers have different priorities on each dimension. For this reason, although the importance of the non-price effects has been recognized, the analysis of the anti-competitive effects of mergers has focused on the price. And this price-based approach is used instead because there is this intuitive belief.

7. In a market where competition is not functioning properly, once the price is fixed, the quality of the goods or services will be deteriorated whereas once the quality is fixed, the price will increase. Therefore, there is no significant different between evaluating the

anti-competitive effects based on the possibility of price increase and evaluating the effects based on the possibility of quality deterioration.

8. However, theories and empirical studies of economics show that this belief is not always true. In particular, in a situation where businesses use both price and quality as strategic variables, the relationship between the level of competition and quality does not necessarily appear to be either positive (+) or negative (-). In a variety of empirical studies on the media, airlines, supermarket, medical services and cable TV industries, there are mixed results of positive (+) and negative (-) relationships between the level of competition and quality.

9. Therefore, if non-price factors are used as strategic values in competition among businesses, or when reviewing mergers in industries where non-prices factors play an important role in assessing the anti-competitive effects, it is not appropriate to assume that the relationship between the level of competition and quality is not always going in one direction. And it is required to assess the non-price effects by quantifying them as much as possible within the allowable range.

3. Case: Joint Venture Agreement between Korean Air and Delta Air Lines

3.1. Overview

10. Recently, the KFTC compared the unilateral pricing effects and the efficiency-enhancing effects of the metal-neutrality joint venture (JV) agreement between Korean Air and Delta Air Lines by considering both the price and non-price effects quantitatively.

11. A metal-neutral JV jointly determines flight schedules, airfares, sales and promotions by any airline within the alliance, and shares profits. This results in virtually similar effects to mergers, and it brings about the unilateral pricing effects by reducing the number of competitors in the relevant market.

12. On the other hand, the formation of a JV may increase efficiency in the following aspects. Firstly, it expands the range of consumer choices by increasing supply capacity (more seats, new routes and flights, and input of large aircraft). Second, it diversifies flight schedules (distribution of departure times, etc.) and allows a quick transfer. Third, it increases passenger convenience.

13. The unilateral pricing effect can be relatively easily quantified by using various measuring methods widely used for analyzing an unilateral effect in the traditional merger review. However, the efficiency-enhancing effects can't be converted immediately to the prices, and quantification is relatively difficult because it contains many factors that are subjective in nature.

14. However, in the case of the airline industry, various service quality factors have traditionally been playing a key role in the competition among airlines, and airlines have been actively using quantitative analysis models for forecasting demand according to changes in quality factors. Therefore, unlike other industries, it is relatively easy to quantify the efficiency-enhancing effects of JV or merger in the airline industry by using the related models.

15. In this case, the companies concerned submitted the quantitative estimation of the effects of enhancing consumer benefits on the metal-neutral JV by using the QSI

(Quality-of-Service Index) model. And the KFTC compared the unilateral pricing effects to the efficiency-enhancing effects that can be caused by the JV agreement, and judged whether it was necessary to impose measures on the agreement.

3.2. Overview of the QSI model

16. The Quality-of-Service Index (QSI) is a widely used analytical model in the aviation industry. Since the US Civil Aeronautics Board developed it for regulatory purposes in 1957, it has been widely used by airlines, aircraft manufacturers, airports and governmental organizations. In particular, it is known that individual airlines utilize the QSI model when establishing various strategic plans in the normal course of business, adding new flights or routes, and predicting the effects of cooperation with other airlines, such as the JV agreement case.

17. Based on historical data, the QSI model predicts consumer preferences on characteristics of travel schedules, (the number of transit, total flight times, etc.) marketing partnership agreement with airlines operating connecting flights (code share, interline, etc.) and types of aircraft, Then it comprehensively considers additional factors that affect consumers' demand (marketing factors such as frequent flyer programs, consumer preference on departure times, and algorithm for redistributing passengers when demand exceeds supply on a particular route). And by utilizing such data, the QSI ultimately estimates passenger traffic for each route. In other words, the purpose of using QSI is to predict the change in demand caused by changes in quality of airline services.

3.3. Quantification of the efficiency-enhancing effects by using the QSI model

18. The forecast of demand changes through the QSI model provides useful information when the competition authorities review JVs. For example, if service quality is improved by expanding the connection network after the formation of the JV, the demand for JV services will increase. And the QSI model can estimate this increase in demand. If supply increases in proportion to increased demand, consumer benefits will also increase. From a view point of the competition law, this increase in consumer benefits can be translated into an enhanced 'efficiency effects' caused by the formation of the JV. If that value is large enough to offset the effects of the price increase by the JV, the competition authorities are more likely to positively review the approval of the JV.

19. The efficiency-enhancing effects of the JV will be described in more details as follows. In a situation where a typical demand curve exists, the demand curve moves upward if the service quality increases. This shift in the demand curve means that when the service is sold at the same price (p) as the previous one after the service quality was improved, the demand increases and the consumer benefits also increase. The QSI model provides information on this demand growth ($\Delta q = q^* - q$).

20. Meanwhile, this increase in consumer benefits can be explained without the shift in the demand curve. In this case, the key is to convert "a change in quality of service", which is a qualitative variable, into a quantitative variable, notably a price or "monetary value". Intuitively, it is to determine how far the price should go down to achieve the demand growth (estimates made through the QSI model) that will result from improved service quality. For example, if a certain quality factor is added to a certain good, the demand will increase. And if this increase in demand is the same as the increase in demand when the price is decreased by 100 won, the value of the newly added quality factor is 100 won.

21. To put it differently, it can be understood that when the demand increases from q to q^* due to the improvement of the service quality, there is a range of price reduction which causes the same increase in demand. That is, there will be a price that induces a demand of q^* on the existing demand curve, and this price determined becomes the 'quality adjusted price'.

22. As described earlier, the QSI model provides information on the quantity change ($\Delta q = q^* - q$) caused by the improvement of the service quality. After identifying the quantity change (Δq) through the QSI model, the price change (Δp) can be calculated by utilizing the equation for calculating price elasticity of demand as follow.

$$\epsilon \equiv \frac{\Delta q}{q} \times \frac{p}{\Delta p} \Rightarrow \Delta p = \frac{1}{\epsilon} \times \frac{\Delta q}{q} \times p$$

23. In the above equation, for the price elasticity (ϵ), the values in the existing economic papers that were calculated to estimate the price elasticity in the aviation industry can be used. For the price (p) and quantity (q), the values observed in the market can be substituted and for the quantity change (Δq), the value obtained from the QSI model can be utilized.

24. Using the value Δp calculated through the above equation, the quantity change (Δq) obtained through the QSI model, and data on the current price (p) and quantity (q), the actual consumer benefits caused by the formation of the JV can be quantitatively calculated.

3.4. Balancing between the anti-competitive effects and the efficiency-enhancing effects

25. According to the V.4 of the Guidelines for Concerted Practice Review, when a concerted practice generates both the efficiency-enhancing effects and anti-competitive effects, the illegality of the practice is examined by balancing the two effects, and it should be reviewed that whether the efficiency-enhancing effects can offset the anti-competitive effects. Meanwhile, the VIII.1.(c) of the Guidelines for Combination of Enterprises Review also stipulates that a merger can be approved only when the efficiency-enhancing effects are greater than the anti-competitive effects.

26. In other words, according to these Guidelines, by simply balancing the efficiency-enhancing effects and anti-competitive effects in each relevant market, if the former is bigger than the latter, the illegality of the JV agreement case can be denied.

27. Based on this fact, the KFTC decided the anti-competitive effects of the JV by focusing on balancing the efficiency-enhancing effects calculated through the QSI model and the amount of consumer loss caused by reduced competition in the relevant markets, which are the direct routes where the parties concerned are competing.

28. However, considering the fact that due to the characteristics of the aviation market, a significant part of the efficiency-enhancing effects takes place in the network-to-network connection beyond the relevant market, the efficiency-enhancing effects in the entire network system were also taken into account.

29. As a result of the review, this JV has the effect of enhancing consumer benefits in the entire network system operated by the JV between the airlines, but some of the direct

routes are expected to cause anti-competitive effects. Accordingly, the KFTC has submitted its opinion to the Ministry of Land, Infrastructure, and Transports (MOLIT), which will make a final decision on the approval, suggesting the approval of the establishment of the JV on condition that certain measures are to be imposed on the direct routes for which the anti-competitive concerns are expected.