

Ex-post Evaluation of the Effect of the Concentration of Patented Technologies by Business Combination (summary)

Recently, according to the growth for the position of intellectual property in firms' business strategies, evaluating the effect of the concentration of patented technologies by business combination on market competition becomes important for the regulation of business combination.

In this article, methods for quantitatively evaluating whether such concentration of patented technologies caused by business combination affected market competition were explored by covering the antitrust case of business combination on the concentration of patented technologies. In particular, the case of vending machine industry in which company *A* acquired a stake of company *B* was subject to be examined in order to analyze the effect of “(1) creation and enhancement of the bundle of patents” and “(2) enclosure of the patented technologies”, by using patent database.

As for (1), the main-path analysis was adopted to abstract the essential patent and examined whether the bundle of patents was created and enhanced by this acquisition. The main-path analysis is the method identifying the indispensable pathway when networks like those of infections or internet are created by spread of information, and it is mainly developed in social sciences rapidly. This analysis has been also developed to apply for technological networks in these days. According to a result of analysis, it was not found for company *A* that it created the bundle of patent and enhanced it in the technology *A*, while it was the case in the technology *B* as company *A* held a majority of the essential patents.

Next, with regard to (2), it was evaluated by tracing the ratio of the number of one firm's patents cited by the other firms to that of others' patents cited by one firm, and (2) was examined how this ratio has changed by the business combination. As technological development is cumulative and creates network of related technologies due to its linkage of technological development, patented technologies which are cited by many subsequent patents are of more significance and firms with a lot of such patented technologies can be consequently regarded to have high capacity of technological development. As a result of analysis, the other firm, company *C* could be functioned as a valid competitor after the business combination, and thus company *A* was not recognized to enclose the technologies and markedly enhance its capacity for technological development, nor causing large technological difference among competitors.

Utilization of the main-path analysis has just begun in this field of the concentration

of patented technologies by business combinations recently, and thus development of the methods and applications for practices are expected in more detail. In this article, however, it can be utilized for the identification of the essential patents and it enables to evaluate the ability of technological development among the competitors which cannot be revealed with only the cumulative number of patents.