

The Effects of R&D Subsidies for Joint R&D in a Vertically Related Industry

Naoto Jinji and Yoshitaka Kawagoshi

Kyoto University

Kyoto Sangyo University

RIETI

Abstract

This study investigates the effects of the R&D subsidies for R&D project between a final-good firm and an intermediate-good firm in a vertically related industry. We consider home and foreign countries and the rest of the world. Two final-good firms are located in the home and foreign countries, respectively. There is also one intermediate-good firm located in the rest of the world. We assume that the home final-good firm and the intermediate-good firm jointly develop a new intermediate-good. As a result of the R&D, the intermediate-good firm reduces its marginal cost for the home final-good firm. At the same time, the foreign firm has benefited from R&D to adapt new intermediate-good developed by home and intermediate-good firms. For R&D activity, the home government subsidizes the home final-good firm. We consider two cases of how the intermediate-good firm sets its product price: (i) marginal cost pricing to the final-good firm in the home country and (ii) monopoly pricing with discriminatory intermediate-good prices.

Our main findings are as follows. R&D subsidy set by the home government can be equal to the one to maximize global welfare in both cases. Then, the R&D subsidy of the home country can also be desirable for global welfare. R&D subsidies can cause retaliations, such as countervailing tariffs by another country since the foreign firm incurs its profit. Our paper shows that the home country can avoid the countervailing tariff since the global welfare increases.

Keywords: R&D; Vertically related market; R&D subsidies

JEL classification: F13; H71; O32