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Technology transfer in mixed oligopolies: The role of cooperatives

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Abstract:

Patent licensing is a key channel of technology/innovation diffusion and the most frequently observed contractual agreement between firms. It encourages and facilitates technology transfer and is a key contributor to firm profitability, economic efficiency, productivity growth and social welfare.

Despite the prevalence of mixed markets in which cooperatives compete alongside investor-owned firms (IOFs), the involvement of cooperatives in innovation activity, and the importance of firms' organizational structure for the formation of their strategy, the impact of cooperative involvement in licensing of innovations has not been considered by the relevant literature. With the exception of a few studies on the involvement of public firms in licensing, the literature has focused, instead, on the optimal patent licensing mechanisms in pure oligopolies (i.e., a small number of profit-maximizing IOFs).

This paper extends the literature on technology licensing by examining the impact of cooperative involvement in the licensing of cost-reducing process innovations. To determine the impact of cooperative involvement in technology licensing, we compare and contrast the outcomes of the strategic interactions between the licensor and licensee(s) in pure and mixed oligopoly settings. The research develops sequential game-theoretic models of technology licensing that explicitly account for the empirically relevant heterogeneity of consumers and producers; members and non-members of the cooperative. The explicit consideration of this heterogeneity allows for the disaggregation of the welfare impacts of licensing and the determination of its ramifications for different consumers and producers.

Analytical results show that the organizational form does matter in technology licensing; cooperative behavior differs from that of its IOF counterparts yielding significantly different equilibrium outcomes in mixed oligopolies where the cooperative is the licensor or the licensee of the process innovation involved. While our analysis focuses on consumer cooperatives, the results of our study hold for all cooperatives that constitute a backward integration of their members.

Keywords: cooperatives, patent licensing, process innovation, mixed oligopoly.