

Sequential Technology Choice and Welfare

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September 2006

Abstract

This paper investigates how affects an entry on an incumbent's technology choice and whether technology choice in the equilibrium is desirable from the viewpoint of social welfare. We construct a following four-stage game: In the first stage, a monopoly incumbent chooses its production technology used for both pre-entry and post-entry markets. In the second stage, it enjoys monopoly profits using technology chosen. In the third stage, the entrant observes the incumbent's technology and then chooses its production technology. The firms compete *à la* Cournot in the fourth stage. We assume that there are two available technologies, called a large-scale technology (with high fixed cost and low marginal cost) and a small-scale technology (with low fixed cost and high marginal cost), and that the incumbent has to pay the technology switching cost ε to use different technologies in pre-entry and post-entry market. Main conclusions we obtain in this paper are as follows: (i) The increase in ε tends to bring socially desirable technology choice when the difference in efficiency (marginal cost) between two technologies is large, although it may change desirable technology choice into undesirable one when the difference in efficiency is small. (ii) Suppose that the incumbent uses only the large-scale technology while the entrant uses the small-scale technology in the equilibrium. This technology combination is always socially desirable.

Key Words: Technology Choice, Entry, Large-Scale Technology,
Small-Scale Technology

JEL Classifications: L13, O33, D43