

R&D and the Timing of Product Switching

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September 2011

Abstract

The incentives for R&D of a multi-product firm and the timing of product switching are examined in a two-product Cournot model of duopoly with process innovation. The two firms are an innovator and an imitator and both supply a market with an existing homogeneous product. The innovator is also a prototype producer of a new product, which is an imperfect substitute to the existing old product. Time is divided into two stages. Stage 2 is the production stage. In stage 1, the imitator copies the innovator's initial technology while the innovator carries out further cost-reducing process R&D. A new R&D model is proposed, which adopts a search-theoretic framework to formulate the stochastic nature of the R&D process and can be used to extend many leading deterministic models in the literature. By dealing with multi-product R&D and product selection together, this paper presents new insights into the timing of product switching.

Keywords: R&D, innovation, multi-product firm, product switching
JEL classification: O31, L13, D21

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