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Differentiated product and process R&D with productive efficiency asymmetries

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Abstract

This paper examines a vertically differentiated duopoly model where firms are distinguished into three dimensions: marginal cost, product quality and the level of product substitutability. I hereby replenish Zanchettin (2006) result in an enlarged parameter space context, and propose more detailed comparison between Cournot and Bertrand modes in the perspective of equilibrium price and quantity, firm and industry profits, and the corresponding aggregate social welfare. To substantiate the argument for firms' preferences in productive efficiency and the level of product substitutability, I further incorporate a two-stage product and process R&D model, in which firms are elective to choose their respective optimal R&D portfolios, and prove that the less efficient firm has stronger preference for more differentiated product, and the more efficient firm has greater incentive to expand the relative manufacturing efficiency gap.

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