Dynamic Oligopolistic Competition between Innovating Firms

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Aim of the project:

The overall aim of this project is to develop and exploit a dynamic framework of analysis that allows studying the optimal investment strategies of oligopolistic firms under consideration of the uncertainty about future changes in the market structure. The considered changes in the market structure are due to changes in the range of products offered on the market triggered by product innovations of the firms in the market. As the ability to introduce new products is typically based on innovation effort of the innovating firm, such changes are endogenous results of firm strategies and industry dynamics. Therefore, there are important feedback effects between firm strategies on established markets (like capacity investments) and innovation strategies aiming at the introduction of new products that extend the product range. The main contribution of this project is to consider the effects of expected changes in the market structure on strategic behavior on established markets, as well as the feedback between capacity investments for established products and innovation efforts, in a dynamic game theoretic framework.

Research Questions:

- How does the perspective of the future introduction of additional (differentiated) products affect capacity investments of oligopolistic firms on established markets?
- How are the capacity dynamics influenced by asymmetries with respect to innovation capabilities between competitors?
- How are incentives to invest in innovative activities influenced by (current) capacities for established products?
- How is the timing of the introduction of a new product influenced by (current) capacities for established products?

Method:

The research questions are analyzed using (piecewise deterministic) differential games as well as real option models. A combination of analytical and numerical methods are employed to characterize optimal behavior respectively behavior in the Markov-perfect equilibria of the considered models.

Publications:

Numerical Analysis of Markov-Perfect Equilibria with Multiple Stable Steady States: A Duopoly Application with Innovative Firms

Dawid H, Keoula M, Kort PM (2017) Dynamic Games and Applications 7(4): 555-577.

Dynamic Investment Strategies and Leadership in Product Innovation

Dawid, H, Keoula M, Kopel M, Kort PM (2017) Working Papers in Economics and Management; 03-2017.

Skiba Phenomena in Markov Perfect Equilibria of Asymmetric Differential Games

Dawid H, Keoula MY, Kort PM (2016) Dynamic Perspectives on Managerial Decision Making

Dawid H, Dörner KF, Feichtinger G, Kort PM, Seidl A (Eds);

Springer International Publishing: 63-76

Product Innovation Incentives by an Incumbent Firm A Dynamic Analysis

Dawid H, Keoula M, Kopel M, Kort P (2015) Journal of Economic Behavior and Organisation 117: 411-438

Entry Deterrence by Timing Rather than Overinvestment in a Strategic Real Options Framework

Huberts NFD, Dawid H, Huisman K, Kort PM (2015) Working Papers in Economics and Management; 02-2015

R&D Competition versus R&D Coorperation in Oligopolistic Markets with Evolving Structure

Dawid H, Kort PM, Kopel M (2013) International Journal of Industrial Organization 31(31): 527-537