

# **Essays in Industry Dynamics on Imperfectly Competitive Markets**

**av**

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**AKADEMISK AVHANDLING**

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## Essays in Industry Dynamics on Imperfectly Competitive Markets

### Abstract

This thesis consists of four empirical essays on imperfectly competitive markets.

Entry of large (“big-box”) stores along with a drastic fall in the total number of stores is a striking trend in retail markets. The first essay uses a dynamic structural model to estimate total factor productivity in retail. Then we assess whether entry of large stores drives exit and growth in the productivity distribution of incumbents. Using detailed data on all retail food stores in Sweden, we find that local market characteristics, selection, and nonlinearities in the productivity process are important when estimating retail productivity. Large entrants force low productivity stores to exit and surviving stores to increase their productivity growth. Growth increases most among incumbents in the bottom part of the productivity distribution, and then declines with the productivity level of incumbents. We use political preferences in local markets to control for endogeneity of large entrants. Our findings suggest that large entrants play a crucial role for driving productivity growth.

The second essay proposes a dynamic structural model to estimate productivity when productivity evolves as an endogenous process and firms decide how much to invest depending on the competitive pressure they face. Using data on all manufacturing firms in Sweden, this paper finds that open market policies and entrepreneurship policies complement R&D policies and are important drivers of the competitiveness of established firms. Conservative estimates suggest that the optimal investment is at least 0.7 to 2.5 times the actual investment in R&D for a median firm and 2 to 4 times for a firm located in the upper part of the productivity growth distribution.

The third essay proposes a fully dynamic oligopoly model to estimate the costs of repositioning store formats together with sunk costs of entry and sell-off values of exit in the retail industry. In differentiated product markets, when firms are affected by demand shocks, they may react by repositioning their products, which in turn affects market structure. The model gives important information about driving forces behind format changes and how such repositioning can be linked to entry and exit. Using data from Sweden, the results indicate that both repositioning and entry costs increase with market size, and their growth decreases when moving to larger markets. Small markets have higher sell-off values than repositioning costs, but large entry costs. The difference between higher entry and lower repositioning costs explains why the number of observed repositionings is higher than the number of entrants. Since entry is regulated in most OECD countries, repositioning costs and their link to competition have important implications for competition policy.

The fourth essay proposes a fully dynamic structural model to analyze the impact of the 2001 dot-com bust on the productivity dynamics and the cost structure for IT services. Aggregate demand shocks such as the burst of the 2001 dot-com bubble affect firms’ behavior and, therefore, the market structure. The empirical application builds on an eight year panel dataset that includes every IT service firm in Sweden and is representative for many other European countries. Essay four finds that incumbents are more productive than entrants and net exit contributed the most to productivity growth in the IT services after the dot-com bust. The fixed investment and labor costs are higher for software but lower for operational services after the dot-com bust. Finding the relative importance of fixed costs is a step closer to being able to link policies that affect adjustment costs in IT services.

Key words: industry dynamics; imperfect competition; dynamic oligopoly model; productivity dynamics; service markets; structural estimation; R&D; IT services; retail food

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