CCP Executive Summary
Working Paper 20-04
August 2020

CENTRE FOR COMPETITION POLICY

Title: Product line extensions under the threat of entry: evidence from the UK pharmaceuticals market.

Author(s) Farasat A.S. Bokhari and Weijie Yan

KEYWORDS: Product proliferation, product hopping, entry deterrence, pharmaceuticals, hazard models

INTRODUCTION

- Do firms invest in capacity to deter entry and, if so, how can we distinguish it from other reasons for investment? Further, when are these strategies effective? Some of the earlier theoretical literature argued that deterrence is not rational or an equilibrium outcome, as investments can be delayed until after entry takes place. Later models, such as those using commitment mechanisms, showed that pre-emption can be a rational action for firms.
- Although there is extensive theoretical research on this, empirical evidence is limited. This is because entry deterrence via strategic investments is empirically difficult to isolate from other reasons for investment. Our paper contributes to the growing empirical literature on strategic deterrence and its effectiveness by analysing the timing of product line extensions in pharmaceutical markets in the UK.
- In pharmaceuticals, additional products can be launched to fill the product space and, hence, entry can be denied via product proliferation. Alternatively, originators can engage in product hopping where they shift patients to a newer variant of the original drug, and where the new variant is protected by intellectual property rights, thus making entry into the original variant unattractive.
- We answer two questions: is there evidence that firms launch additional drugs to deter entry and, if so, when do these strategies work?

METHODOLOGY

- A central issue in identifying entry deterring investments is to separate the decisions of incumbents under *the threat of entry* from cases when entry occurs, since in the latter case incumbents may be adjusting to the new market structure.
- To address this, we study the product launch rate of originators before and after the end of their market exclusivity period, a point when the threat of entry changes, and before any entry takes place. We further divide the sample into two groups: those originators that eventually experience entry and those that do not. A difference-in-difference estimator is used to compare the product launch rate before and after market exclusivity ends, and across the two groups. We also estimate hazard models for entry as a function of market size, and how market shares (and hence patients) are distributed across variants of the originator's products.
- The analysis uses sales data of pharmaceuticals in the UK between 1996 and 2016. We define an originator as the first firm that sells a drug with a specific molecule within a therapeutic class, where the class-molecule combination defines a market, and firms that later enter in the same class-molecule combination are defined as followers. Additional products by the originator are drugs that have the same class-molecule classification, but differ in their formulation alone, or by their formulation, dosage or pack size.

KEY FINDINGS

Centre for Competition Policy
University of East Anglia,
Norwich Research Park,
Norwich, Norfolk NR4 7TJ

T: +44 (0) 1603 59 3715
E: ccp@uea.ac.uk
W: competitionpolicy.ac.uk

CCP Executive Summary
Working Paper 20-04
August 2020

CENTRE FOR COMPETITION POLICY

- For firms that experience entry, we find a sharp and significant decline in their product launch rate after the end of exclusivity and before any entry takes place. By contrast, firms that do not experience entry do not change their launch rate after the end of the exclusivity period. Therefore, we conclude that strategic deterrence is a motive behind product line extensions.
- The above result is mostly driven by medium-sized markets. First, when we compare the number of products launched before the end of exclusivity between firms that experience entry and those that do not, this difference is positive and significant only in medium-sized markets. Second, the difference across the two groups regarding the change in launch rate between before and after the end of exclusivity, is largest for medium-sized markets. We conclude that deterrence is a strong motive in medium size markets but not necessarily in small and large markets where other factors, beyond deterrence, may be contributing to additional product launches.
- Also, we find that, if the originator launches additional variants, and if the market shares of the originator's drugs are evenly spread across its formulations, then it reduces the risk of entry only in medium-sized markets.
- The alternative strategy of product hopping is rare but effective in deterring entry in large markets. However, in small markets, product hopping is positively correlated with entry. The difference in the effect of product hopping across small and large markets may be driven by differences in detailing efforts (i.e., advertising and sales calls to physicians) across these markets.

CCP

The Centre for Competition Policy (CCP), at the University of East Anglia, undertakes competition policy research, incorporating economic, legal, management and political science perspectives, that has real-world policy relevance without compromising academic rigour.

FOR MORE INFORMATION

The full working paper 20-04 and more information about CCP and its research is available from our website: www.ccp.uea.ac.uk

ABOUT THE AUTHOR(S)

- Farasat A.S. Bokhari is an Associate Professor in the School of Economics and a Faculty member of the Centre for Competition Policy, University of East Anglia
- Weijie Wan is a Postdoctoral Research Fellow at the Economic and Social Research Institute, Republic of Ireland and an affiliate of the Department of Economics at Trinity College Dublin, Republic of Ireland.