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The value of switching costs ☆

Gary Biglaiser [a], Jacques Crémer [b,*], Gergely Dobos [c]

[a] *University of North Carolina, Chapel Hill, United States*
[b] *Toulouse School of Economics (GREMAQ, CNRS and IDEI), France*
[c] *Gazdasági Versenyhivatal (GVH), Hungary*

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Abstract

We study a dynamic model with an incumbent monopolist and entry in every subsequent period. We first show that if all consumers have the same switching cost, then the intertemporal profits of the incumbent are the same as if there was only one period. We then study the consequences of heterogeneity of switching costs. We prove that even low switching cost customers have value for the incumbent: when there are more of them its profits increase as their presence hinders entrants who find it more costly to attract high switching cost customers.

JEL classification: D43; L13; L12

Keywords: Switching cost; Dynamic competition; Incumbency; Entry

In many industries, the market power of incumbents is protected by the switching costs that consumers have to incur when they purchase from an entrant. This paper focuses on the consequences of the presence of low switching cost customers; we find that their presence hinders entrants, who find it more costly to attract high switching cost customers.

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* Corresponding author at: Toulouse School of Economics (IDEI & GREMAQ), 21 allée de Brienne, 31015 Toulouse Cedex 6, France.

E-mail addresses: gbiglais@email.unc.edu (G. Biglaiser), jacques@cremeronline.com (J. Crémer), gdobos@gmail.com (G. Dobos).

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As we will discuss in Section 2, in the simplest static economic model of switching costs, with one incumbent and at least two entrants, heterogeneity of switching costs does not matter. If a proportion $\alpha > 0$ of the agents have switching cost $\sigma > 0$, while the others have no switching cost, the incumbent will charge σ and its profits will be equal to $N \times (\alpha\sigma)$, the average switching cost of all the consumers, multiplied by the number of agents, N. We show that this result changes drastically in a dynamic model in which there are new potential competitors in every period; the more skewed the distribution of switching costs, the greater the profits of the incumbent. To the best of our knowledge, this fact and the importance of the distribution of switching costs have not been recognized in the literature, despite the existence of a significant body of theory which explores the consequences of consumer switching costs. (We discuss the literature below in Section 1.)

Our results have implications for managerial practice and for public policy. Entrants should beware of not pricing aggressively while attracting footloose consumers who will not stick with them when they increase prices. Antitrust authorities should take into account the whole distribution of switching costs (including the switching costs of consumers who decide to purchase from entrants) when determining whether incumbent firms are behaving anticompetitively.

We conduct our analysis by studying a series of models with the following features: (a) the switching costs of consumers are invariant over time; (b) at the start of the 'game' there is a single incumbent firm; and (c) there is entry (at least potentially) in every period. Following much of the literature, we assume that only short term contracts are used and that switching costs do not depend on the firm from which consumers purchase.

In Section 2, we introduce our analysis by considering the case where all consumers have the same switching cost σ. In a one period model, the incumbent would charge σ, and, assuming that the mass of consumers is equal to 1, its profit would also be equal to σ. We embed this static model in a dynamic framework and show that in equilibrium aggregate discounted profit over all periods is also equal to σ, whether the number of periods is finite or, subject to stationarity assumptions, infinite. In the latter case, this implies that the profit of the incumbent is equal to the value of a flow of per period payments equal to $(1 - \delta)\sigma$, not to σ! Although this result is very easy to prove, and is implicit in some of the literature, we feel that it is worth stressing as it shows that switching costs are a leaner cash cow than sometimes assumed.

The bulk of our analysis of the heterogeneity of switching costs can be found in Section 3. A proportion $\alpha \in (0, 1)$ of consumers have a switching cost equal to $\sigma > 0$, while the others have no switching cost. We identify the (stationary) equilibrium of the infinite horizon model. As opposed to the case where all consumers have the same switching cost, the intertemporal profit of the incumbent is greater than the one period profit, although it is smaller than the value of an infinite stream of one period profits. We prove that even zero switching cost customers have value for the incumbent, despite the fact that they never purchase its product after entry has occurred: the profits of the incumbent increase when, keeping fixed the number of high switching cost consumers, there are more zero switching cost customers. Indeed, their presence hinders entrants who find it more costly to attract high switching cost customers.[1]

In Section 4, we examine alternative entry assumptions: we first study the case where there is only one entrant in every period, and then the case where the number of entrants is random. Finally, while in the rest of the paper we assume that price discrimination based on purchasing

[1] However, if the proportion of zero switching cost consumers increase keeping fixed the total number of consumers (and therefore decreasing the number of high switching cost consumers) the profits of the incumbent decrease – high switching cost consumers are still more valuable than zero switching cost consumers.