

On the Effects of Market Incumbency on Innovative Behaviour in the Pharmaceutical Industry

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This paper evaluates empirically these counter-acting views on incumbent firms' incentives to innovate in the Pharmaceutical Industry. It attempts to distinguish firms' strategic incentives to innovate (market share) from organizational effects affecting innovative behaviour. The empirical research to date confirms the basic thrust of the theoretical literature: the incentive to bring radical innovation persistently by incumbents is rather uncertain. This

This paper evaluates first whether dominant firms show a higher innovation propensity. To evaluate market dominance we distinguish firms' market share from firms' incumbency status. We consider as incumbent firms, those firms already established and patenting before the period concerned (1973). Secondly, our work evaluates firms' propensity to innovate conditional on their past innovative effort. To this purpose, we use patent citation data and distinguish pioneer from follower patents in the technological race. GMM-count data methods (Chamberlain, 1993; Wooldridge, 1991) are employed to deal with dynamics and pre-determined variables.

To analyse the innovation activity we use two data sources. We extract patent data from the NBER patent data file, by Hall et al. (2001) concerning the USPTO\ (United States Patent and Trademark Office) utility patents granted in the classes 514 and 524 over the period 1973-1994. This patent data is matched to firms' accounting data from the Standard & Poor COMPUSTAT Annual Industrial Files Database by using the CUSIP identifier (Committee on Uniform Security Identification Procedure) code of the firm. Data are therefore reduced to a sample of 77 pharmaceutical firms in a unbalanced panel at the USPTO between January 1975 and December 1994.

Our results show that, while a higher market-share discourages firms' innovative effort, incumbents firms are found to be persistent innovators and notably, persistent sources of quality-patenting. This result corroborates Gilbert and Newbery's hypothesis about pre-emptive innovative behaviour. In order to take advantage of their technological experience and non-technological assets (e.g. downstream competences), incumbent firms show higher incentives to continuously invest in R&D and ensure their technological leadership. They are the main source of non-adjusted patents and also of most-cited patents. The higher economic value in terms of sales stem from the stock of high cited patents. Nevertheless, in accordance with organizational theories, dominant firms are subject to decreasing R&D productivity related to possible diseconomies of scale and organizational inertia. Our results confirm thus the increasing difficulties to innovate stemming from dominant firms' R&D capacity (technological competences).