

# Innovation Case Studies, Data

**Tirole, 1988, Ch. 10**

**Belleflamme and Peitz, 2010, Ch. 18-19**

**p. 484**

- Microsoft, in the mid-2000s, was far less innovative in its core businesses (Windows and Office) where it enjoyed monopoly or near-monopoly than in its new businesses (gaming, mobile devices, television set-top boxes). "Microsoft's hidden ability to innovate has become apparent only in a market in which it is the underdog and faces fierce competition".
- Plausibly, Microsoft had less incentive to innovate in its core business because of the "replacement effect". If Microsoft were to innovate in its core business, it would "replace itself" and yield only small increase in profit. In contrast, if it were to successfully innovate in new, more competitive markets, where it does not already enjoy substantial profits, it would enjoy a much larger increase in profit.

**p. 490**

- In the 2010s, car manufacturers responded to pressure to produce lower-emission vehicles with innovations such as hybrid cars. Such innovations were one-upped by more disruptive innovations, such as electric cars.
- Innovation by entrants appears, anecdotally, to be more drastic, than innovation by incumbents, which in contrast appears to be more incremental. It is not clear that this difference is entirely attributable to economic incentives rather than differences in managerial attitudes and behaviour.

**Gilbert and Newbery, 1982**

**Reinganum, 1983**

**Aghion et al., 2005**

- Aghion et al. examined the relationship between innovation, measured by the citation weighted number of patents, and industry competitiveness, measured by the Lerner index using data on UK firms' patenting activity at the US patent office, and found an inverted U-shape relationship between innovation and competitiveness. Innovation is greatest at intermediate levels of competition and is lower in both highly competitive and highly uncompetitive industries.

**Cunningham et al., 2021**

- Cunningham et al. examined acquisitions in the pharmaceutical industry, and found that (conservatively) 5.3% – 7.4% of acquisitions were killer acquisitions. Acquired projects were less likely to be developed when they overlapped with the acquirer's existing product portfolio (and there is thus a significant replacement effect), and killer acquisitions disproportionately occur just below thresholds for antitrust scrutiny.

**Dasgupta and Stiglitz, 1980**

**Lerner, 1997**

- Lerner examined the relationship between firms' innovative efforts and their position relative to rivals using data on disk drives built by 119 firms between 1971 and 1988 and found that firms whose best disk drive (measured by data density) was 25% – 74% as good (again in terms of data density) as the market leader were most likely to make the greatest technological progress, controlling for technological opportunity, financing constraints, and firm turnover.
- The disk drive industry seems to be well-approximated by the Reinganum model since leading products commanded substantial premiums while trailing products were often priced as commodities.
- Lerner's findings seem to be more consistent with theoretical suggestions that firms that trail the technological leader have greater incentive to innovate (Reinganum, 1983) than the contrasting predictions of Gilbert and Newbery (1982).

**Igami, 2017**

- Igami estimated a model of dynamic oligopoly using data on the hard disk drive industry from 1977 to 1999, and found, in model simulations, that incumbents had less incentive to innovate than entrants, and the "replacement effect" accounted for 57% of the incumbent-entrant innovation gap.

## **Reinganum, 1989**