
Introduction

- In a number of industries firms compete by gradual innovation in perpetual races without clear finishing lines.
- Firms ahead in the race earn higher rewards than lagging firms, e.g. higher product quality might imply a higher price mark-up or larger market.

Methodology

- The paper presents an experimental test of behaviour in R&D races.
- Traditionally, measuring strategic behaviour is difficult and thus attempts are often imprecise; also, R&D motivations are varied.
- This experimental approach addresses these problems by studying a controlled environment that measures strategic behaviour precisely; only one variable is changed at a time from race to race.
- Theory predicts two behavioural patterns: reflecting behaviour, where both R&D companies tend to stay in the race for an indefinite period, resulting in the leader being the first to give up exerting high effort, allowing the laggard to catch up; and absorbing behaviour, where the leader invests more than the follower, leading to an R&D leadership monopoly, entrenched leadership (the laggard is first to give up exerting high effort), and lower aggregate investment.

Experiment Results

- Investment was high but seemed to decrease with experience.
- The greater the gap between R&D competitors, the lower the investment in R&D; however, the leader tends to invest more than the follower.
- The market tends to become an R&D leadership monopoly as the gap in relative position becomes greater.
- The perpetual race setting generally elicits a competitive mindset.
- Motivation is not always monetary with R&D teams; for example, rivalry concerns are a motive for innovation behaviour.

Conclusion

- Strategic motives alone do not provide an adequate explanation for observed behaviour; specifically, behaviour was less context-sensitive than the theory predicted.
- Technological competition tended to evolve into an R&D leadership monopoly: a market structure with an entrenched leadership and lower aggregate investment than if competitors were to remain neck-and-neck.
THE CCP

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