

Firm Effects in Innovation Research

A Review of Readings

Ashwin Iyengar

Corporate Strategy and Policy
Indian Institute of Management Bangalore

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Outline

Overview

Cohen (2010)

Teece (1986)

Agrawal et al. (2014)

Igami (2015)

Firm Effects in Innovation Research

Antecedents & Consequences

- Cohen (2010) - Review of 50 years of empirical studies on innovative activity and performance
- Teece (1986) - Profiting from technological innovation
- Agrawal et al. (2014) - Empirical study on role of small firms in innovation output of regions
- Igami (2015) - Empirical study of comparison of incumbents vs. entrants

Innovative activity and performance

Agenda

- Schumpeterian hypotheses relating innovation to market structure and firm size
- firm characteristics and innovation
- industry characteristics (demand, technological opportunity and demand conditions) and innovation

Innovative activity and performance

Findings

- Robust finding of a monotonic relationship between firm size and R&D, driven by cost-spreading effect
- No unambiguous relationship between market structure and R&D
- Other determinants of innovation: technological opportunity and appropriability, market segmentation
- Absence of suitable data a constraint to understanding industry level determinants
- Firms invest in R&D to generate new knowledge and to develop absorptive capacity

Innovative activity and performance

Considerations

- Simulations models have helped capture the dynamics of innovation, firm growth and market structure, but availability of historical data limits empirical testing
- Absence of accurate measures of innovation - the output of innovative activity. Patenting and weighted citations are limited measures
- Service sector innovation grossly under studied (exception of financial services)
- Empirical findings offer limited insight in the absence of underlying theory
- Modeling can serve in the development of theory
- Inductive efforts - historical and case study literatures provide rich insights and the source of hypotheses

Profiting from technological innovation

Summary

- When imitation is easy, markets do not work well
- Profits from innovation accrue to owners of certain complementary assets rather than developers of intellectual property
- Product life cycle model of international trade will work very different in different industries and markets - based on appropriability regime and nature of assets

Role of small firms in innovation output of regions

Summary

- R&D labor organisation impacts patenting rates
- Implication for regional innovation policies - attracting anchor tenants or cultivating entrepreneurial ventures
- Innovation and regional lab structures are endogenous - study uses fixed effects, lagged dependent variables and instruments to identify

Comparison of incumbents vs. entrants

Summary

- Prior theory suggest cannibalization between existing and new products slows incumbents innovation rate, this may be offset by preemption
- Prior theory: Sunk costs tend to reinforce the above
- This study: Despite preemptive motives and cost advantages, incumbants are still reluctant to innovate due to cannibalization

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- Igami, M. (2015). Estimating the innovator's dilemma: Structural analysis of creative destruction in the hard disk drive industry, 1981-1998. *Journal of Political Economy*, *Forthcoming*.
- Teece, D. J. (1986). Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy. *Research Policy*, 15(6):285 – 305.