Competition, Innovation and Growth: Theory, Evidence and Policy Challenges

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Introduction

Central question

- “How does competition affect innovation and growth?”
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Conventional wisdom

- competition exerts downward pressure on costs, reduces slack, provides incentives for efficient organization of production
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Conventional wisdom

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The “Schumpeterian” alternative

the only effective form of competition is innovation
anti-trust measures reduce the reward to innovation
Main Thesis

1. Schumpeterian theory really supports the conventional wisdom: product-market competition is essential to the growth process.
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2. Reduced entry barriers more important than anti-trust
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1. Schumpeterian theory really supports the conventional wisdom that product-market competition is essential to the growth process.
2. Reduced entry barriers are more important than antitrust.
3. Channels through which antitrust promotes innovation.
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2. Reduced entry barriers more important than anti-trust
3. Channels through which anti-trust promotes innovation
4. Case even stronger for “BRIC” than for OECD countries
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Two important themes

1. The most effective form of competition is global competition
2. Interaction with trade, labor, education, IPR policies
Schumpeterian growth theory

Long-run growth driven by technological change
Technological change arises from within the economy
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Different technology strategies, depending on distance to frontier
Innovation and implementation
Context-dependent theory of “appropriate growth policy”
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Context-dependent theory of “appropriate growth policy”

In the earliest version of the theory competition reduces growth by reducing monopoly profits that reward innovation
Problems with the “Schumpeterian” alternative

Appropriability effect contradicted by much empirical evidence

1. UK industries
2. Japanese prefectures
3. Countries that relaxed domestic barriers (eg China and India)
4. Lessons of import substitution (eg Argentina versus Canada)
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→ Second-generation models with growth-enhancing effects of competition that counteract appropriability
Rethinking Schumpeterian theory

1. Ex ante barriers to entry

Competition that reduces barriers will let in more innovators

Removing barriers vs anti-trust - focus of the Sapir report
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Djankov et al (2002) measures of cost of starting a business

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Incumbent firms innovate to escape entry (esp. close to frontier)
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Figure 1: Reactions to entry in incumbents near and far from the technology frontier

Notes: The figure plots spline estimates of the relation between the greenfield foreign firm entry rate and subsequent TFP growth of domestic incumbent establishments in UK 4-digit industries, 1987 to 1993. Each dot represents the average TFP growth estimate for establishments in one industry-year cell. Three spline points are chosen such that all establishment observations in industry-year cells with non-zero entry are grouped into four equally sized classes. The distance to the technology frontier is a relative labor productivity measure relating 4-digit UK industries to their US counterparts. The top (blue) curve is for establishments close to the technology frontier and the bottom (red) curve is for establishments further behind the technology frontier, i.e. more distant to the frontier than the sample median. Source: Authors' calculations using ONS and other data. All statistical results remain Crown Copyright.
Barriers to entry when far from frontier

Works in India when combined with appropriate labor market regulation (Aghion, Burgess, Redding & Zilibotti, 2005)
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Removing barriers raises industry-wide productivity growth more in less productive industries (Nicoletti-Scarpetta, 2003)

This is how trade should work, especially for countries like BRICs with many firms near the frontier
Further reasons for promoting global competition

Trade liberalization stimulates productivity growth more generally

1. Efficiency effect of international trade
2. Importation of high tech intermediates (Coe, Helpman)
3. Direct knowledge spillovers enhance implementation (Keller)
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- Latin America vs Maloney’s betas, RIM and Univ of Waterloo
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  ▶ Latin America vs Maloney’s betas, RIM and Univ of Waterloo

Works best with openness to foreign technology
  ▶ Canada’s Industrial Research Assistance Program
Rethinking Schumpeterian theory

2. Corporate governance problems

Monopoly profit allows managers to avoid costly innovation

More vigorous competition means “innovate or die” (Porter)
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Qualifications:
- Polish counterevidence of Grosfeld-Tressel (2001)
- Empire-building versus the quiet life. e.g. Bell Labs
- but is this relevant for middle income countries?
Rethinking Schumpeterian theory

3. The escape-competition motive

Appropriability effect strongest for a small startups
But most productivity growth comes from incumbents
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Incumbent innovation responds to incremental profit, not total
Incremental profit increased by stronger anti-collusion laws
A firm must innovate to escape competition
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Either increasing or inverse-U competition-innovation relationship
The Inverted U
Aghion, Bloom, Blundell, Griffith and Howitt (2005)

FIGURE 1: Innovation and Competition: The Neck and Neck Split

The figure plots a measure of competition on the x-axis against citation weighted patents on the y-axis. Each point represents an industry-year. The circles show the exponential quadratic curve that is reported in column (2) of TABLE I. The triangles show the exponential quadratic curve estimated only on neck-and-neck industries that is reported in column (4) of TABLE III.
Policy lessons from the AHHV model

Most UK firms in the region where competition raises growth

- Probably also the case for most middle income countries
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What matters is ex ante competition
  ▶ concentration ratios are the wrong measure
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What matters is *ex ante* competition
  ▶ concentration ratios are the wrong measure

Strong competition laws weaken the case for strong IPR
  ▶ *ex ante* competition creates *ex post* monopoly
  ▶ needs to be challenged from time to time
Six principles for promoting competition

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4. Build strong industry-university ties to allow bottom-up national champions
5. Adopt smart IPR laws that don’t coddle monopolies
6. Remove labor market regulations that inhibit reallocation
Final word

As you approach the frontier, appropriate policy changes

Changing from state protected monopolies a big challenge