

Discussion of “How Destructive is Innovation?” by Daniel Garcia-Macia, Chang-Tai Hsieh and Peter J. Klenow

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A decomposition of aggregate productivity growth

- Classification of innovations:

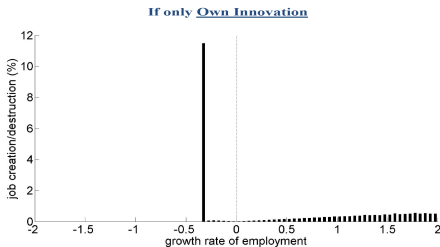
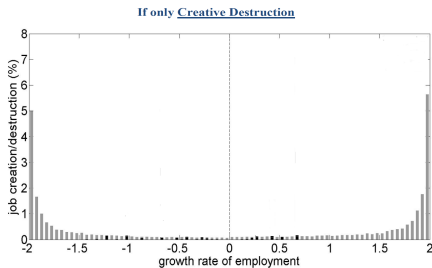
	Incumbent	Entrant
Vertical innovation (own variety)	λ_i	0
Vertical innovation (somebody else's)	δ_i	δ_e
Horizontal innovation	κ_i	κ_e

Creative destruction consists of δ_i and δ_e . (Why not λ_i ?)

- ▶ Other sources of productivity growth: learning-by-doing, management practices, organizational changes,...
- GOAL: Assess the relative importance of each of these types of innovation by looking at job growth at the firm level
- Excellent paper: creative and bold!

Methodology

- Example with $\kappa_i = \kappa_e = 0$:



Methodology

- Key assumption: JOBS GROW WITH QUALITY
- What is the relationship between quality and production?
 - ▶ Elasticity of demand (consumer types, differentiation among qualities,...)
 - ▶ Degree of competition (competition among qualities, competition against future selves,...)
- What is the relationship between growth in production and jobs?
 - ▶ Human and physical capital
 - ▶ Quality of intermediate inputs
- Can we go finer? Repeat the exercise at the industry level with tighter priors

Complications: other determinants of job growth

- How do we account for horizontal innovation?
 - ▶ The number of varieties is proportional to the number of firms
 - ▶ New varieties entrants and incumbents proportional to their size
 - ▶ Quality of new varieties relative to existing is related to firm size dispersion
- How do we account for other shocks? (Again, repeat exercise by industry, region,...)
 - ▶ Changes in competition
 - ▶ Changes in financial conditions
 - ▶ Long-term trends in demand (unbalanced growth)
 - ▶ Globalization (exporting vs importing industries)
 - ▶ Geographical shocks
- Entrants and the time-horizon problem. Explore different definitions

Results

Table 5: Sources of Growth, 1976–1986

	Entrants	Incumbents	
Creative destruction	19.1%	8.2%	27.3%
New varieties	0.0%	7.6%	7.6%
Own-variety improvements	-	65.1%	65.1%
	19.1%	80.9%	

Table 6: Sources of Growth, 2003–2013

	Entrants	Incumbents	
Creative destruction	12.5%	6.4%	18.9%
New varieties	0.3%	4.1%	4.4%
Own-variety improvements	-	76.7%	76.7%
	12.8%	87.2%	

- Destruction (!?) is largely internalized
- Growth from new varieties is small and does not come from new entrants