Information Technology and Returns to Scale

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Discussion by Joel Kariel

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This Paper

- Clear set of facts:
  1. Fall in price of IT.
  2. Relative importance of IT depends on firm size.
  3. Labour share falls in firm size.
  4. Labour share approx. constant; concentration up.
- Seemingly small adjustment to standard model with interesting results.
- Clean production function estimation.
- Analyse through GE model.

A Visual Aid

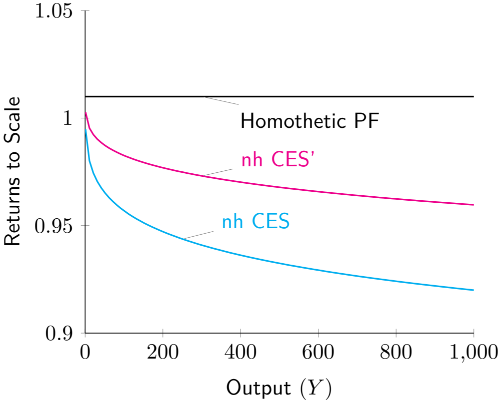

Figure: Returns to scale (inverse of cost elasticity) and firm size.

IT Intensity of Cost

$$\text{IT Intensity of Cost} = \frac{\text{IT payments}}{\text{All factor payments}}$$

- With non-homotheticity, this ratio should be increasing in size.[1]
- But Table 5 in the Online Appendix shows coefficients are approx. constant across firm size *within firms*.
  - **My interpretation:** if a firm increases their IT intensity, they grow by the same proportion independent of their size.

[1] If nh parameter > 0, see Sato (1977) eq. 6b.

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$$\frac{\partial \log \frac{X_I}{X_N}}{\partial \log Y} = \epsilon(1-\sigma)$$

Slightly different 'IT Intensity' has constant elasticity w.r.t firm size.

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Labour Share

You show:

- Within-firm contribution > 0.
- Across-firm contribution < 0.
- These net out to zero with nhCES and in the data.
- What about covariance of firm size and labour share? Central in US (Kehrig and Vincent 2021), is it also the case here?

Other Comments

1. **Aggregate productivity**: how to reconcile your model with evidence?
2. **Software**: is it capital? Is it flexible? Is it both?!
3. **Organisational input**: is it consistent with outsourcing and managerial capital?