Intangibles and COVID19 – Results from the GLOBALINTO Survey of Intangibles Workshop

Sources of productivity growth I: intangible survey

Hannu Piekkola University of Vaasa
Tjasa Derek, Mojca Bavdaz

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New Intangibles for European Growth
https://globalinto.eu/

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Background on firm-level analysis

- **Broad measures of intangibles (IAs)** using full register-based occupational data approach that originates from Innodrive (EU FP 7th framework project 2008-2011)
  - Globalinto, Innodrive: Organizational capital (OC) such as management and marketing 1/3 of R&D,
  - **Structural capital: OC and R&D** crucial in knowledge sourcing

Quality of intangible (IA) work in LEED data:

- **Innovation-labor biased technical change IBTC**, Piekkola (2020)*, Piekkola et al. (2021)**

Globalinto intangible survey on broad intangibles:

- Information on own (in-house) vs. external R&D, alternative knowledge sources, R&D and university degree employees

*Piekkola (2020) Intangibles and Innovation-labor-biased technological change (IBTC= Journal of Intellectual Capital

** Piekkola, Bloch, Derek & Rybalka 2021. Intangibles from innovative work – their valuation and technological change. IARIW-ESCoE Conference November 11-12. London, submitted to special issue in Review of Income and Wealth.

*** Piekkola (2020) In-house R&D in knowledge firms - Evidence from Globalinto intangible survey. Unpublished

Objectives

- Globalinto intangible provides an ideal framework to identify R&D types.
- Aim is to see whether these types can also be identified due to different performance.
- R&D types providing new technology is important for long term growth.
- Bresnahan and Jones (2012) argue that a large part of technical progress reuses existing innovations in new fields.
  - Most of the durable product and process innovations indeed lean to known technology *

* Piekkola (2022) Innovations and innovation-labor biased technical change as drivers of productivity. Mimeo.

Table 1. R&D types in knowledge intensive firms: organizational boundaries

Adapted from Roethaermel & Alexander 2009 Organization Science

New Technology	Internal sourcing	External sourcing	Known technology
	I Internal R&D R&D labor intensive	II R&D HC labor intensive	
	III R&D Absorptive capacity	IV external R&D HC labor intensive	

Organizational boundary

R&D labor intensive: $\frac{L_{R\&D}}{L_{\text{University degree}}}$ high

HC labor intensive: low

R&D type I: $\frac{\text{own R\&D}}{L} \times \frac{L_{R\&D}}{L_{\text{University}}}$ High

Policy considerations

Quality of R&D has not been in the frontline in economic studies

- Identifying R&D type I is important as the growth path is likely different and explains long-run growth
- Similarly to R&D-IBTC, OC-IBTC (innovation-labor biased technical change) proxies the relative quality of R&D or OC and significant role in firms activity
- In current formal surveys internal R&D appears less pronounced

To measure even better quality

- More hard data on
  - performance to identify the quality
  - markups (pure profits) and competition
- Follow up survey

Policy considerations

R&D type I

– Overcomes the fixed cost problem created by intangibles
  - Relates also to past growth in sales and employment

Intangible survey gives more depth in other growth factors

- R&D type II high share of skilled workers: performance relates more to OC as part of structural capital of R&D and OC
- R&D type III Absorptive capacity with internal sourcing: organizational agility, internal R&D still the core
- R&D type IV external R&D with external sourcing: focus on organizational, marketing innovations

Important to measure intangibles at broad scale!