Investing in KBC by Learning from Knowledge Networks
(Transforming Common-ownership Knowledge into Firm-KBC):
Connectivity, Risk Management and Policy

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Outline

I. **Connectivity vs Absorption-related economic competencies**
   - Application of CHS to Brazil
   - What’s missing? Connectivity investments in KNMs
   - Exploring importance of connectivity

II. **Understanding the role of KNMs and KBC in managing risk**
   - Conceptualizing KBC as investments in risk management

III. **Towards a policy framework for “KBC for development”**
   - 3 policy examples
   - Benefits:
     - of unpacking & measuring TFP components
     - of alliance with WAVES
I. Applying CHS to Brazil: “low” investments in economic competencies

KBC investments as % of expanded GDP, 2006

<table>
<thead>
<tr>
<th>1. COMPUTERIZED INFORMATION</th>
<th>US 1.24 12%</th>
<th>UK 1.42 15%</th>
<th>Germany 0.69 10%</th>
<th>Brazil 1.10 26%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. INNOVATIVE PROPERTY</td>
<td>4.07 39%</td>
<td>2.88 30%</td>
<td>3.38 50%</td>
<td>2.01 47%</td>
</tr>
<tr>
<td>Research and Development (R&amp;D)</td>
<td>1.69 16%</td>
<td>0.98 10%</td>
<td>1.62 24%</td>
<td>0.56 13%</td>
</tr>
<tr>
<td>Mineral exploration &amp; evaluation</td>
<td>0.78 8%</td>
<td>0.04 0%</td>
<td>0.01 0%</td>
<td>0.03 1%</td>
</tr>
<tr>
<td>Copyright &amp; license costs</td>
<td>0.55 5%</td>
<td>0.20 2%</td>
<td>0.20 3%</td>
<td>0.11 3%</td>
</tr>
<tr>
<td>Development costs in financial ind.</td>
<td>0.55 5%</td>
<td>0.06 1%</td>
<td>0.70 10%</td>
<td>1.10 26%</td>
</tr>
<tr>
<td>Designs, incl. architectural &amp; engineering</td>
<td>0.50 5%</td>
<td>1.60 17%</td>
<td>0.85 13%</td>
<td>0.21 5%</td>
</tr>
<tr>
<td>3. ECONOMIC COMPETENCIES</td>
<td>5.04 49%</td>
<td>5.35 55%</td>
<td>2.68 40%</td>
<td>1.17 27%</td>
</tr>
<tr>
<td>Reputation &amp; Branding</td>
<td>1.35 13%</td>
<td>1.06 11%</td>
<td>0.53 8%</td>
<td>0.56 13%</td>
</tr>
<tr>
<td>Advertising expenditure</td>
<td>1.24 12%</td>
<td>0.84 9%</td>
<td>0.39 6%</td>
<td>0.51 12%</td>
</tr>
<tr>
<td>Market research/Branding</td>
<td>0.11 1%</td>
<td>0.22 2%</td>
<td>0.14 2%</td>
<td>0.05 1%</td>
</tr>
<tr>
<td>Training &amp; Development</td>
<td>1.05 10%</td>
<td>2.33 24%</td>
<td>1.21 18%</td>
<td>0.34 8%</td>
</tr>
<tr>
<td>Continuing vocational training</td>
<td>-</td>
<td>-</td>
<td>0.61 9%</td>
<td>-</td>
</tr>
<tr>
<td>Apprentice training</td>
<td>-</td>
<td>-</td>
<td>0.60 9%</td>
<td>-</td>
</tr>
<tr>
<td>Business process improvements</td>
<td>2.64 26%</td>
<td>1.96 20%</td>
<td>0.94 14%</td>
<td>0.27 6%</td>
</tr>
<tr>
<td>Purchased</td>
<td>-</td>
<td>0.47 5%</td>
<td>0.51 8%</td>
<td>0.03 1%</td>
</tr>
<tr>
<td>Own-account</td>
<td>-</td>
<td>1.50 15%</td>
<td>0.43 6%</td>
<td>0.24 6%</td>
</tr>
<tr>
<td>TOTAL INVESTMENT IN KBC</td>
<td>10.35 100%</td>
<td>9.65 100%</td>
<td>6.75 100%</td>
<td>4.28 100%</td>
</tr>
</tbody>
</table>

relatively weak correlation with TFP and export growth
I. What’s missing? Connectivity-related competencies

Measure an additional type of KBC focused on KNM:

(3) economic competencies
i. absorption-related (investments to facilitate absorption & make better use of technologies)
   - advertising
   - market research/branding
   - training & development
   - business process improvement

ii. Connectivity (to facilitate capture & adaptation of technologies)
   - network building (investments to learn from corporate partners, suppliers & buyers incl. locally-based MNCs and global value chains, universities and diaspora)
   - other investments that facilitate learning from global product knowledge, and make knowledge transfer useful to the firm
I. Exploring connectivity investments in KNMs

Chilean wine industry as ideal case study
• growth of 25% p.a. in 1990s
• share of world X in top 5
• 2nd most powerful brand in the world (Intangible Business, 2010)

Pilot survey
• spending on connectivity linked to KNMs
  – on external consultants
  – on university & public research experts
  – on learning from industry associations, value chains, marketing channels
  – on in-house learning from global knowledge

Test hypotheses
• on most important correlates of export growth
• on spillovers across regions
II. Understanding the role of KBC in managing risks

Investments in KBC = investments in firms’ pillars of risk management, providing firms with abilities to commercialize technologies = investments in the resilience of development outcomes.
III. Policy examples

(1) India: **DBT support of global consortia** thru SPVs and domestic PPP support
- 78% of surveyed firms now co-develop
- 86% of these jointly monitor via milestones & joint review processes

(2) Chile: **CORFO TA Fund and subsidies**
- for firms to hire global consultants
- for “Technological capture trips”

(3) Turkey: **How to support local learning beyond EU Customs Union**
- upgrade quality standards to supply FDI export platform
- improve managerial practices to eliminate delivery uncertainties
- adopt co-development protocols
III. “Making the policy case”: Unrealized benefits

(1) Benefits of measuring rather than estimating TFP as residual

- Document benefits:
  - unpack traditional TFP
  - measure importance of KBC types in specific industries relative to benchmarks

- Explore rationale for support (where government failure < market failure)
III. “Making the policy case”: Unrealized benefits

(2) Benefits of **alliance between WAVES and KBC agenda**

- WAVES (Wealth Accounting and Valuation of Ecosystem Services): global partnership, launched 2010, to measure share of **natural capital** in national accounts, and promote its use in economic decision-making
  - Natural capital = minerals & energy, forest timber, agricultural land, fisheries, water + air & water filtration, flood protection, carbon storage, pollination for crops & habitat for wildlife services (values often not captured in markets)

- **A similar “Beyond traditional GDP” agenda** = boosting LT prosperity
- **Build capacity to measure “both natural & knowledge K”, incl.“green KBC”**
  - recent Brazil study breaks down green R&D spending beyond renewable energy including biodiversity (energy systems, sustainable resource extraction) and green agriculture (biotech and sustainability of agricultural production)

- **Demonstrate benefits to policymakers**
References cited


