World Bank Productivity Project

The Productivity Project: www.worldbank.org/productivity
IMPORTANCE OF PRODUCTIVITY LONG-RECOGNIZED

- “Civilization and its well-being as well as business prosperity, depend on productivity…”
  --Ibn Kaldun (1377)

- “Productivity isn’t everything, but in the long run, it is almost everything”
  --Paul Krugman (1994)

- The average person in an advanced economy produces in 9 days what the average person in a follower country produces in 1 year (Restuccia, 2013)

- In the US, most efficient firms (top 10%) produce twice as much output with the same inputs as least efficient firms (Syverson, 2011). In China and India, the same ratio is 5:1.
DECLINING PRODUCTIVITY GROWTH AND WEAK CONVERGENCE

Sources: Cusolito and Maloney, IMF, Albrizio and Nicoletti, Hsieh and Klenow.
High-Growth Firms: Facts, Fiction, and Policy Options for Emerging Economies

Arti Grover Goswami
Denis Medvedev
Ellen Olafsen
HIGH-GROWTH FIRMS DEFINITIONS

• What are HGFs?
  • **OECD definition**: 20% average growth in employment or revenue over 3 years
  • **Birch index**: top 10% of firms in the Birch index of employment or revenue growth over 3 years

• Why focus on them?
  • Job creation
  • Output growth
  • Spillovers
HGFS CONTRIBUTE DISPROPORTIONATELY TO JOBS AND OUTPUT GROWTH
FIRMS LINKED WITH HGFS VIA VALUE CHAINS PERFORM BETTER

Hungary
FICTION VERSUS FACTS

- High-growth firms are young tech start-ups that originate in clusters like Silicon Valley; they start with a handful of founders but once they take off, grow rapidly and dominate the market on the strength of their innovative products and ideas.
FICTION VERSUS FACTS

- High-growth firms are young tech start-ups that originate in clusters like Silicon Valley; they start with a handful of founders but once they take off, grow rapidly and dominate the market on the strength of their innovative products and ideas.

- Most HGFs are young, but are not exactly start-ups.
FICTION VERSUS FACTS

- High-growth firms are young tech start-ups that originate in clusters like Silicon Valley; they start with a handful of founders but once they take off, grow rapidly and dominate the market on the strength of their innovative products and ideas.

- Most HGFs are young, but are not exactly start-ups.

- Many HGFs are medium or large firms.
FICTION VERSUS FACTS

- High-growth firms are young tech start-ups that originate in clusters like Silicon Valley; they start with a handful of founders but once they take off, grow rapidly and dominate the market on the strength of their innovative products and ideas.

- Most HGFs are young, but are not exactly start-ups.

- Many HGFs are medium or large firms.

- HGFs are found in all types of sectors.
High-growth firms are young tech start-ups that originate in clusters like Silicon Valley; they start with a handful of founders but once they take off, grow rapidly and dominate the market on the strength of their innovative products and ideas.

Most HGFs are young, but are not exactly start-ups.

Many HGFs are medium or large firms.

HGFs are found in all types of sectors.

HGFs operate in a wide range of locations.
FICTION VERSUS FACTS

- High-growth firms are young tech start-ups that originate in clusters like Silicon Valley; they start with a handful of founders but once they take off, grow rapidly and dominate the market on the strength of their innovative products and ideas.
- Most HGFs are young, but are not exactly start-ups.
- Many HGFs are medium or large firms.
- HGFs are found in all types of sectors.
- HGFs operate in a wide range of locations.
- High-growth experience is short-lived.
High-growth firms are young tech start-ups that originate in clusters like Silicon Valley; they start with a handful of founders but once they take off, grow rapidly and dominate the market on the strength of their innovative products and ideas.

- Most HGFs are young, but are not exactly start-ups.
- Many HGFs are medium or large firms.
- HGFs are found in all types of sectors.
- HGFs operate in a wide range of locations.
- High-growth experience is short-lived.
- High firm growth and productivity are only weakly related.
WHAT MATTERS FOR FIRM GROWTH?

• Innovation
• Agglomeration and networks
• Skills & Managerial capabilities
• Global Linkages
• Financial Development
POLICY FRAMEWORK TO SUPPORT FIRM GROWTH

Firm dynamism and growth

A: Allocative Efficiency
B: B2B Spillovers
C: Firm Capabilities

Improving quality of firm-level data
Strengthening the rigor of policy evaluation
Building institutional capabilities to implement policy
## POLICY INSTRUMENTS TO SUPPORT FIRM GROWTH

### Direct support

<table>
<thead>
<tr>
<th>Provision of goods and services</th>
<th>Collaboration/voluntary</th>
<th>Nonmarket incentives</th>
<th>Market-based incentives</th>
<th>Advocacy</th>
<th>Policies and regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology, extension support, business advisory, and supplier development</td>
<td>Incubators</td>
<td>Clusters and networks</td>
<td>Competitive grants, prizes, inducement, and ex post recognition awards</td>
<td>Equity finance</td>
<td>Standards</td>
</tr>
<tr>
<td>Accelerators</td>
<td>Science and technology parks</td>
<td></td>
<td></td>
<td>Grants and matching grants</td>
<td>Labor market and skills</td>
</tr>
<tr>
<td>National quality infrastructure</td>
<td>Mentoring and coaching</td>
<td></td>
<td></td>
<td>Vouchers</td>
<td>Competition policy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Loan guarantees</td>
<td></td>
<td>Tax and insolvency</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Networking and access to information</td>
<td></td>
<td>Spatial policies</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Industrial policies</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Trade and FDI policies</td>
</tr>
</tbody>
</table>

### Regulatory and indirect support

- A: improving Allocative efficiency
- B: encouraging Business-to-business spillovers
- C: strengthening firm Capabilities
The World Bank Productivity Project

THE CAPABILITIES ESCALATOR

FIGURE 7.2  The Capabilities Escalator: Innovation Policy Needs

- Temptation: Imitate advanced country institutional structures and policies
  - Establish research centers and institutes with little connection to private sector.
  - Government subsidies and tax write offs for R&D

- Before this stage, countries and the private sector need to:
  - Develop basic firm capabilities then progress to higher technological capabilities that facilitate technology adoption.
  - Redress missing and distorted markets that advanced countries already got right.

Note: NIS = National Innovation System; NQI = national quality infrastructure; R&D = research and development; STEM = science, technology, engineering, and mathematics.
“Fortune favors the prepared mind” (and countries)
Pasteur (1854)

The Productivity Project: www.worldbank.org/productivity
Annex slides
HIGH-GROWTH FIRMS - COUNTRY COVERAGE

Detailed analysis of high-quality longitudinal data sets in: Brazil, Côte d’Ivoire, Ethiopia, Hungary, India, Indonesia, Mexico, South Africa, Thailand, Tunisia, and Turkey.
SOURCES OF PRODUCTIVITY GROWTH

Operating Environment: Removing Distortions, Resolving Market Failures

Human Capital and Innovative Capacity: STI, Entrepreneurial and Managerial Capabilities

Improved factor use across firms and sectors
(Reallocation)

Improved firm performance
(Within)

Improved quality of entering firms
(Selection)

Total Factor Productivity Growth

Source: Cusolito and Maloney (2018).

FIGURE 1.11 Which Dimension Contributes Most to Productivity Growth?

Traditional inference based on TFPR is flawed
Firm performance a broader concept
  • Efficiency
  • Quality
  • Demand (access to markets, scaling-up the demand and brand name)
H-K concept of misallocation is not a good measure of distortions
However, distortions may have larger dynamic impacts on within and entry dimensions
### THE INNOVATION PARADOX

The adoption of existing technologies accelerates growth, dwarfs impact of development aid... yet most developing countries firms fail to reap these benefits and don’t seriously innovate and most governments fail to develop innovation policies that effectively facilitate this process of technological catch up. 

<table>
<thead>
<tr>
<th>Country</th>
<th>Dist. to Frontier</th>
<th>Rate of Return to R&amp;D</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>-0.18</td>
<td>57%</td>
</tr>
<tr>
<td>UK</td>
<td>-0.53</td>
<td>77%</td>
</tr>
<tr>
<td>Italy</td>
<td>-0.73</td>
<td>88%</td>
</tr>
<tr>
<td>Korea</td>
<td>-1.33</td>
<td>?</td>
</tr>
<tr>
<td>Slovenia</td>
<td>-1.50</td>
<td>?</td>
</tr>
<tr>
<td>Malaysia</td>
<td>-2.28</td>
<td>?</td>
</tr>
<tr>
<td>Vietnam</td>
<td>~2.50</td>
<td>?</td>
</tr>
</tbody>
</table>

MANAGEMENT QUALITY: PERCEPTIONS VS REALITY

[Graph showing the relationship between management score and R&D quality index for various countries.]

[Graph showing the relationship between average management practices score and management practices self-score for various countries.]
CREATING EXPERIMENTAL SOCIETIES

FIGURE 5.2  The National Productivity System

- Physical capital
  - Upstream industry
  - Imports
  - Foreign direct investment
- Human capital
  - Education and training system
  - Programs to support entrepreneurial skills
- Knowledge capital
  - Support to firm capability upgrading and entrepreneurship
  - Investment readiness programs
  - Quality and standards programs
  - Domestic science and technology system
  - International innovation system

Barriers to accumulation and allocation
- Barriers to accumulation and reallocation
  - Absent finance and risk-diffusion markets
  - Entry/exit barriers
  - Business/regulatory climate
  - Cost of failure (culture, bankruptcy law)
- Barriers to knowledge accumulation (technology adoption and invention)
  - Rigidities (labor, etc.)
  - Seed/venture capital
  - Innovation and self-discovery
  - Externalities

- The firm
  - Incentives to invest and accumulate
    - Macro context
    - Volatility of sales
    - Competitive structure
    - Trade regime and international networks
    - Support to expand demand
  - Firm capabilities
    - Core competencies (management)
    - Production and technological systems
    - Actuarial capabilities
  - Entrepreneurial characteristics
    - Drive (Grit)
    - Risk tolerance
    - Ability to recognize opportunities
PUBLIC SECTOR PRODUCTIVITY MATTERS AS WELL!