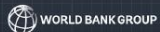


The Innovation Paradox



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Productivity Revisited



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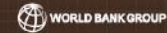


High-Growth Firms



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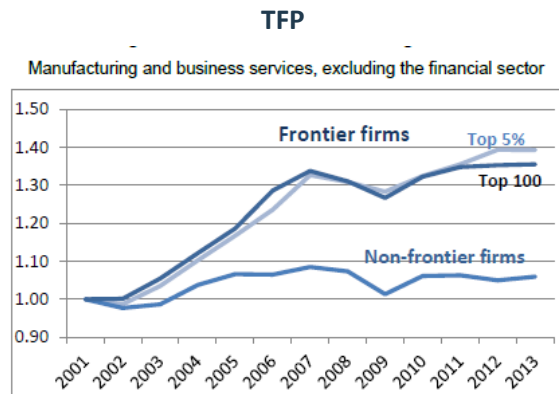
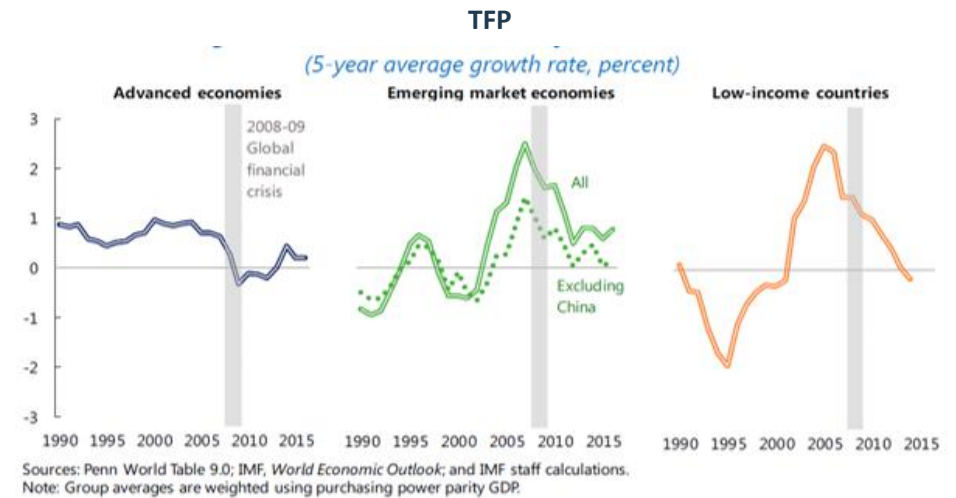
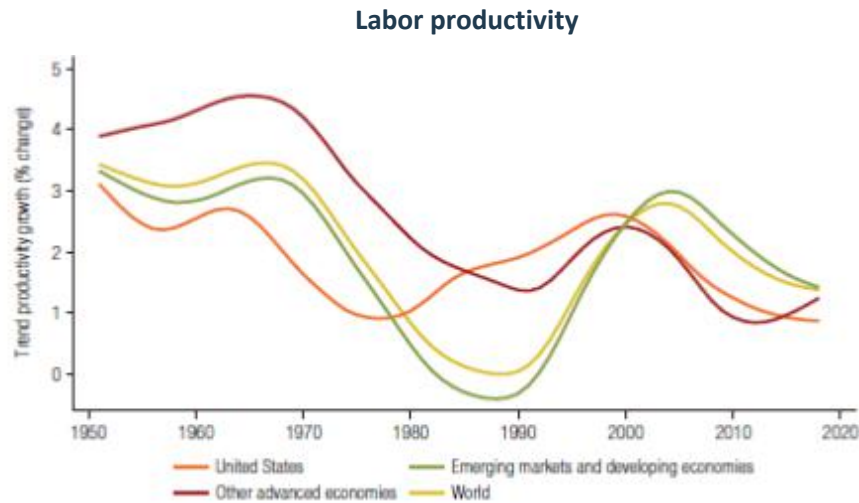
World Bank Productivity Project

The Productivity Project: www.worldbank.org/productivity

IMPORTANCE OF PRODUCTIVITY LONG-RECOGNIZED

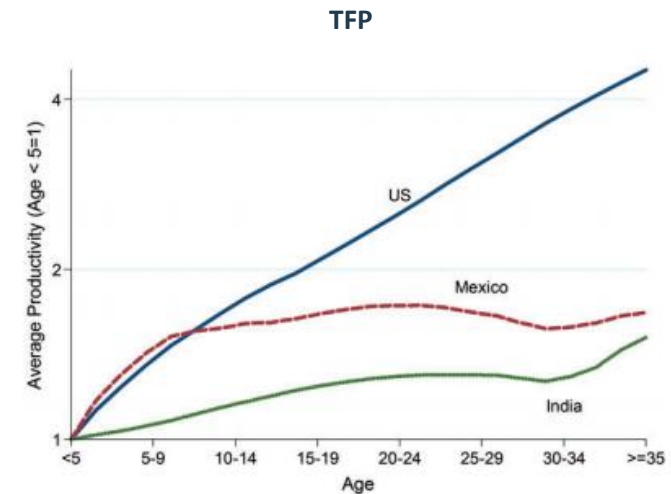
- “Civilization and its well-being as well as business prosperity, depend on productivity...”
--Ibn Kaldun(1377)
- “Productivity isn’t everything, but in the long run, it is almost everything”
--Paul Krugman (1994)
- The average person in an advanced economy produces in 9 days what the average person 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



Note: 2001 = 1 (log points), average across 24 OECD countries and 22 manufacturing and 27 market services industries. Global frontier has two definitions here (see two series on figures). Global frontier is defined as the 100 most productive firms within each industry and is defined as the 5% most productive firms within each frontier, by each year.

Source: OECD preliminary results based on Andrews, D., C. Criscuolo and P. Gal (2016)



SOURCES OF PRODUCTIVITY GROWTH

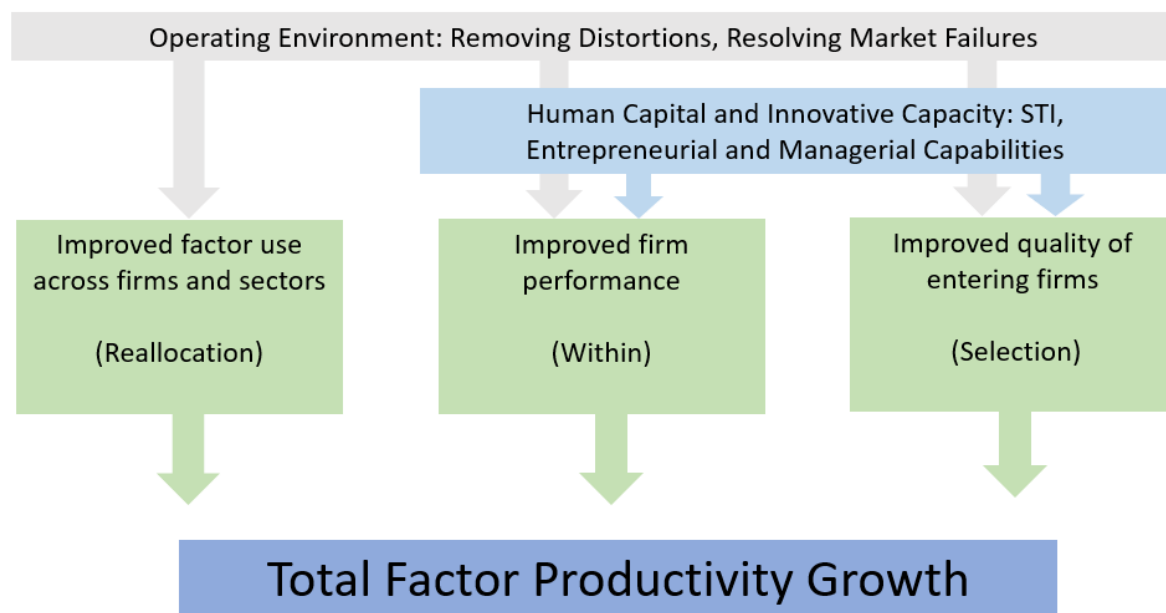
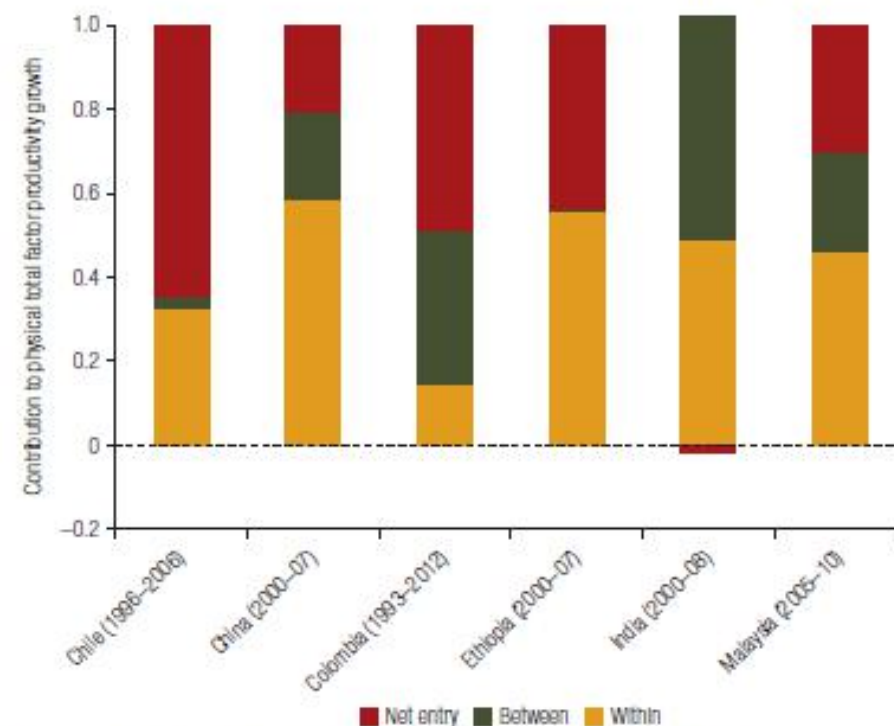


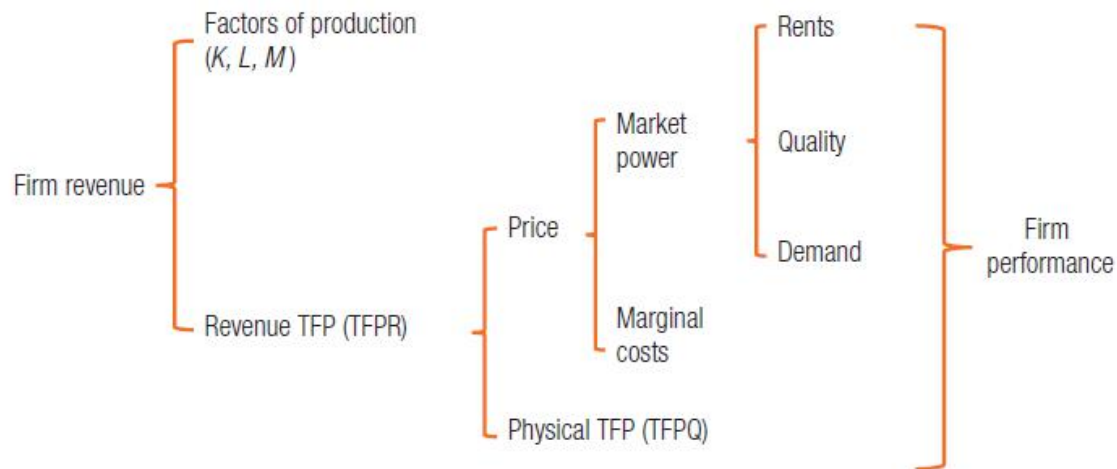
FIGURE 1.11 Which Dimension Contributes Most to Productivity Growth?



Source: Physical total factor productivity decompositions using Melitz and Polanec's (2015) methodology.

MIS-MEASUREMENT CAN MISLEAD POLICY CONCLUSIONS

FIGURE 2.1 Decomposing Firm Performance



Note: K = capital; L = labor; M = materials; TFP = total factor productivity.

- 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

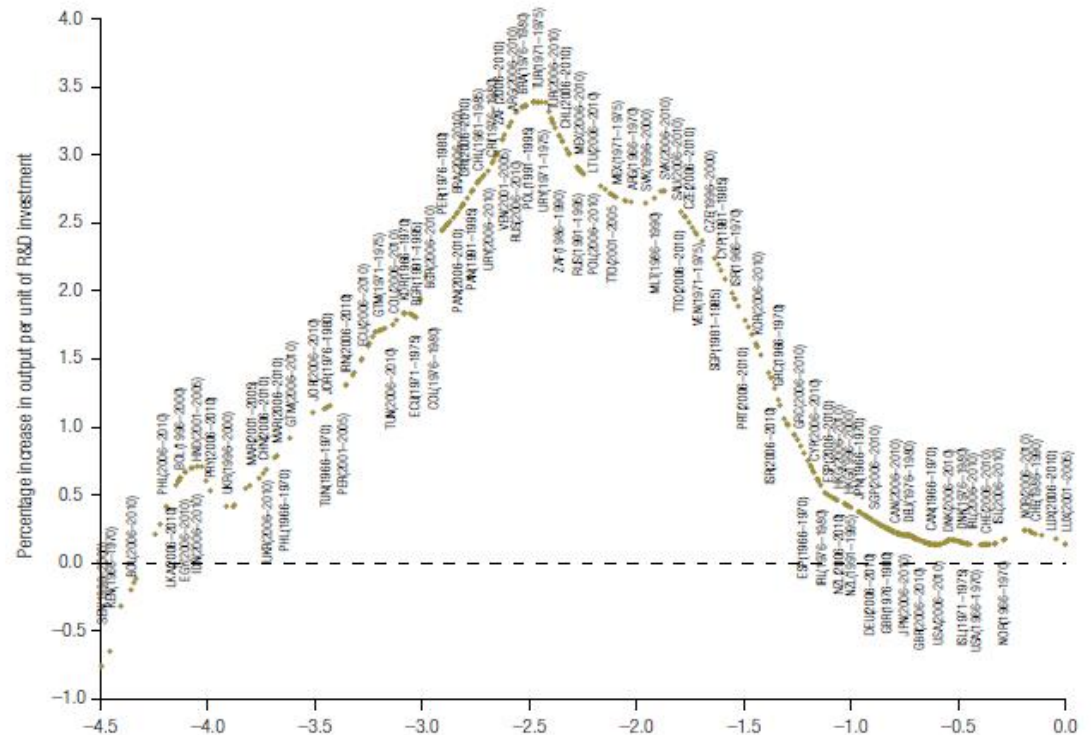
THE INNOVATION PARADOX

Dist. to Frontier Rate of Return to R&D

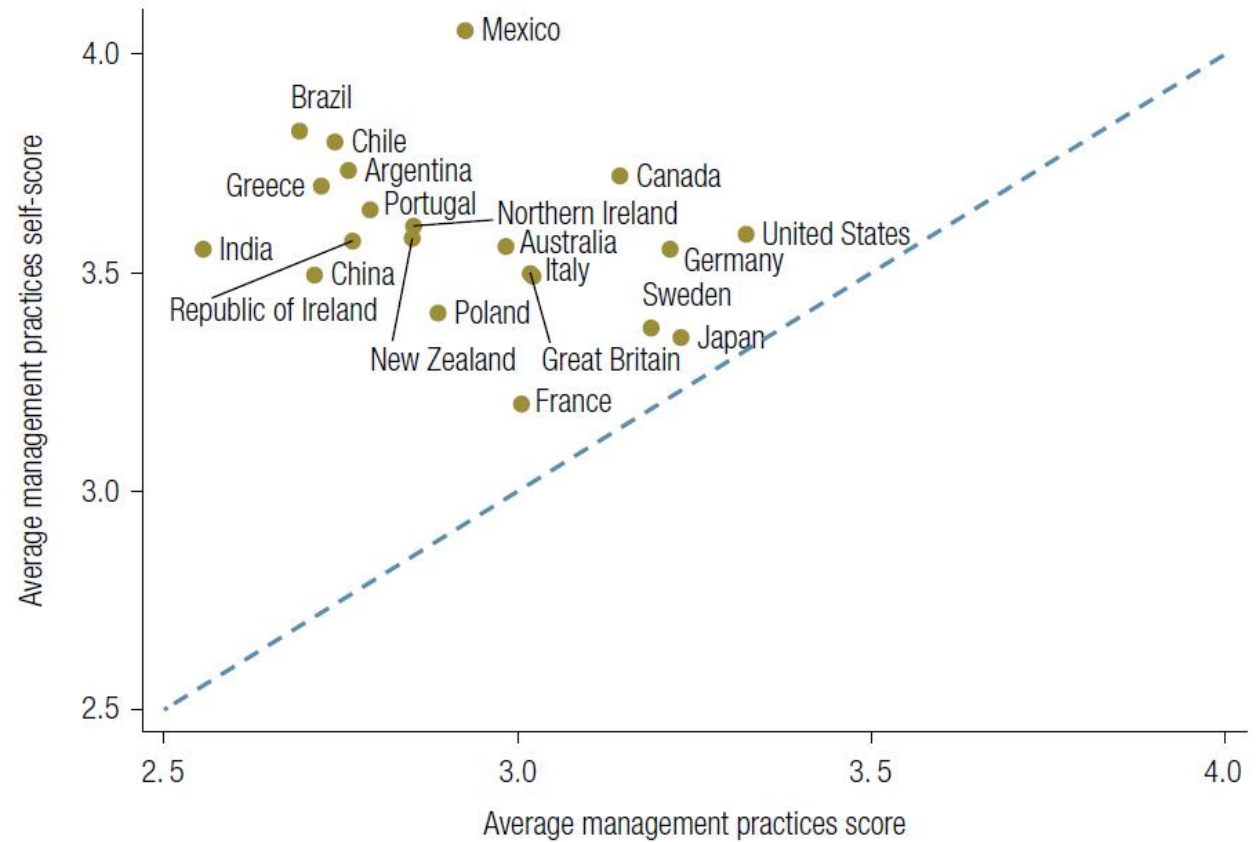
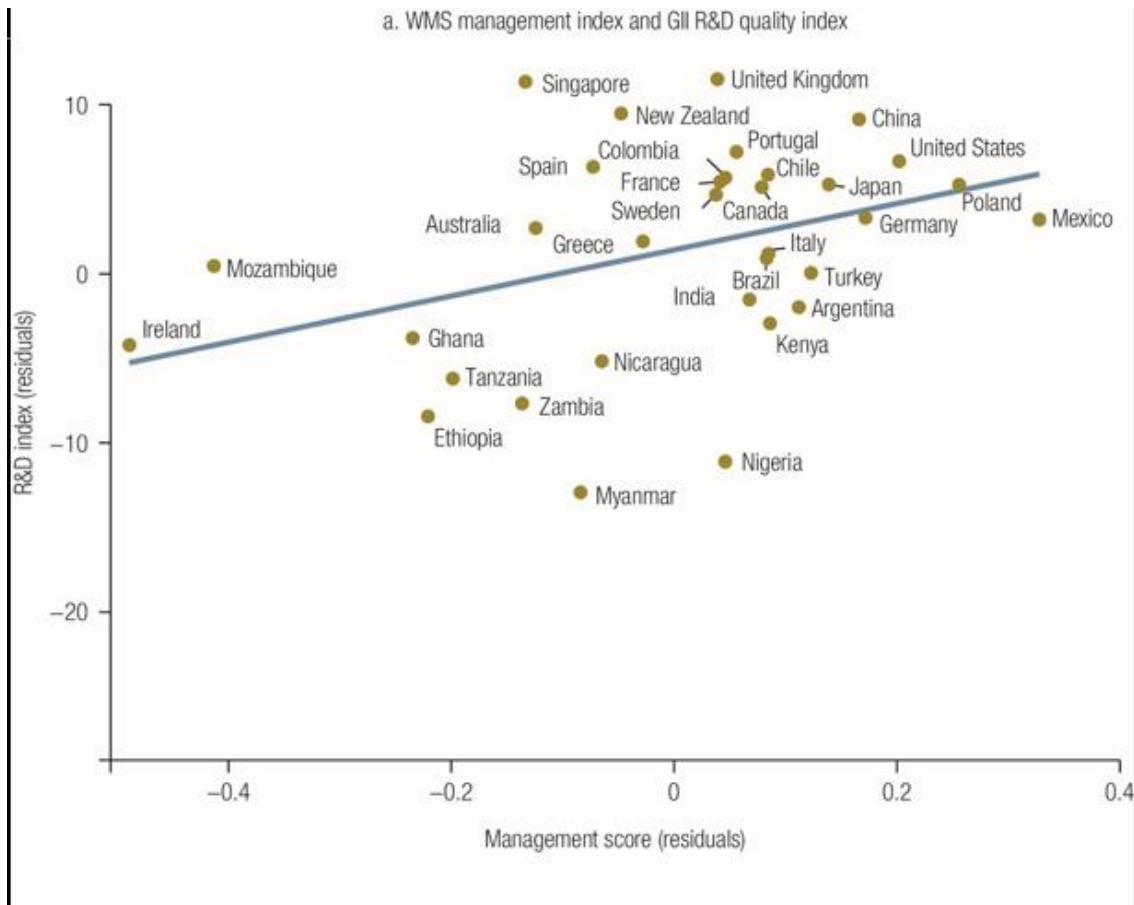
▶ USA	-0.18	57%
▶ UK	-0.53	77%
▶ Italy	-0.73	88%
• Korea	-1.33	?
• Slovenia	-1.50	?
• Malaysia	-2.28	?
• Vietnam	~-2.50	?

Griffith, Redding, Van Reenen (2004)

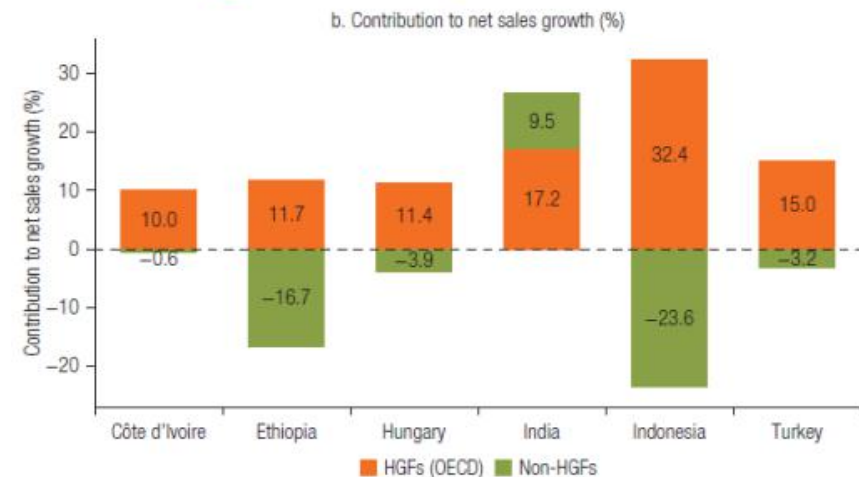
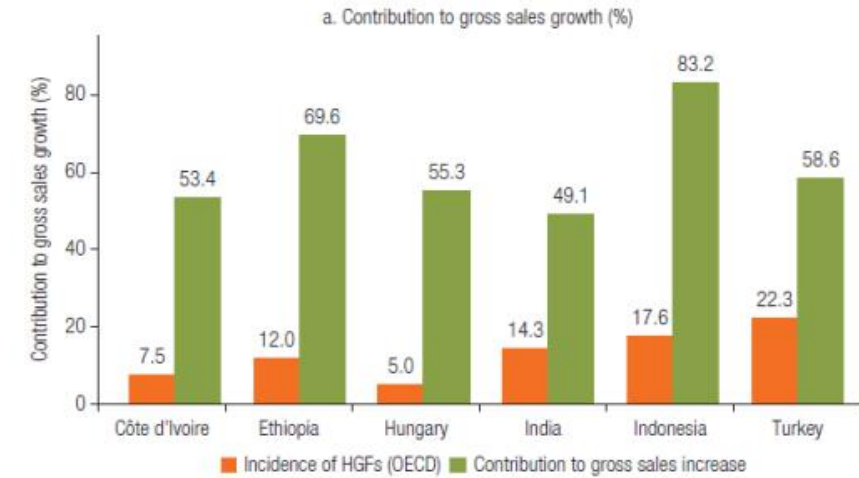
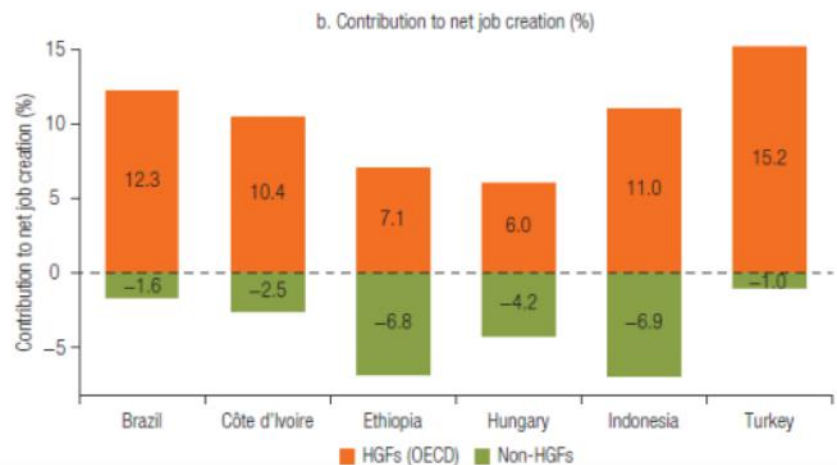
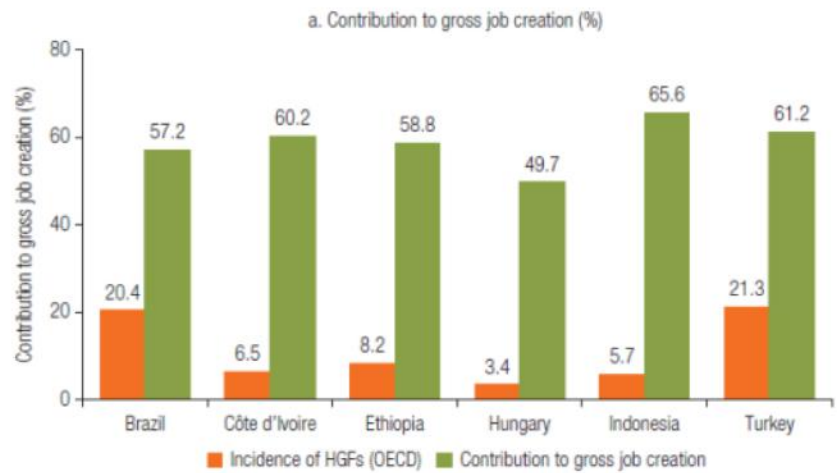
- The adoption of existing technologies accelerates growth, dwarfs impact of development aid... yet most developing countries firms fail to reap these benefits and don't seriously innovate and most governments fail to develop innovation policies that effectively facilitate this process of technological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



MANAGEMENT QUALITY: PERCEPTIONS VS REALITY



20% OR LESS OF FIRMS CONTRIBUTE AS MUCH AS 80% TO JOBS AND OUTPUT GROWTH



BUT THEY AREN'T WHAT MANY TEND TO THINK

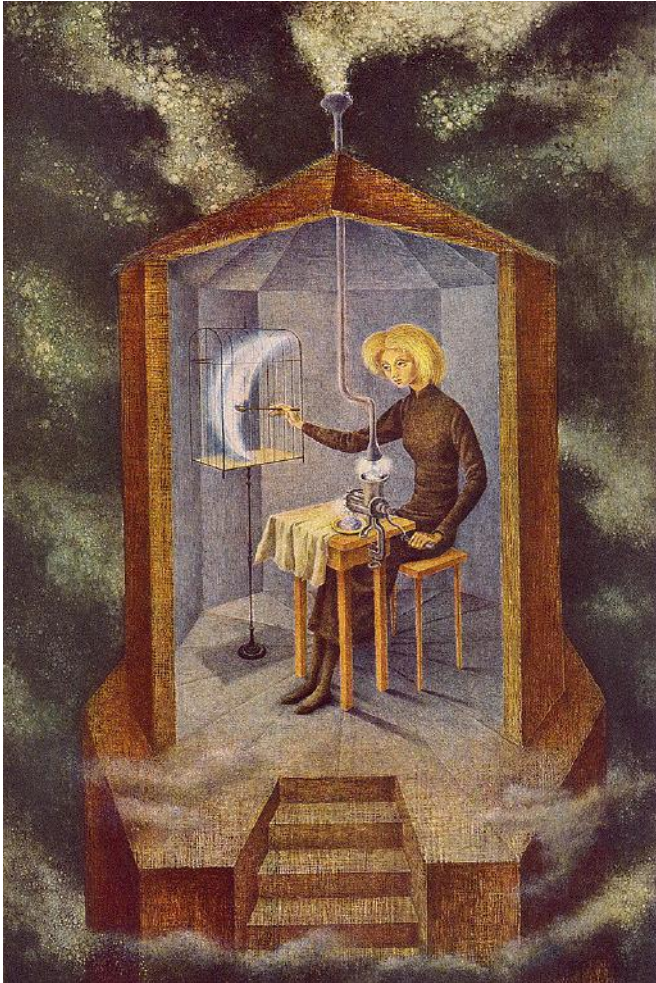
Fiction

- 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

Fact

- 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

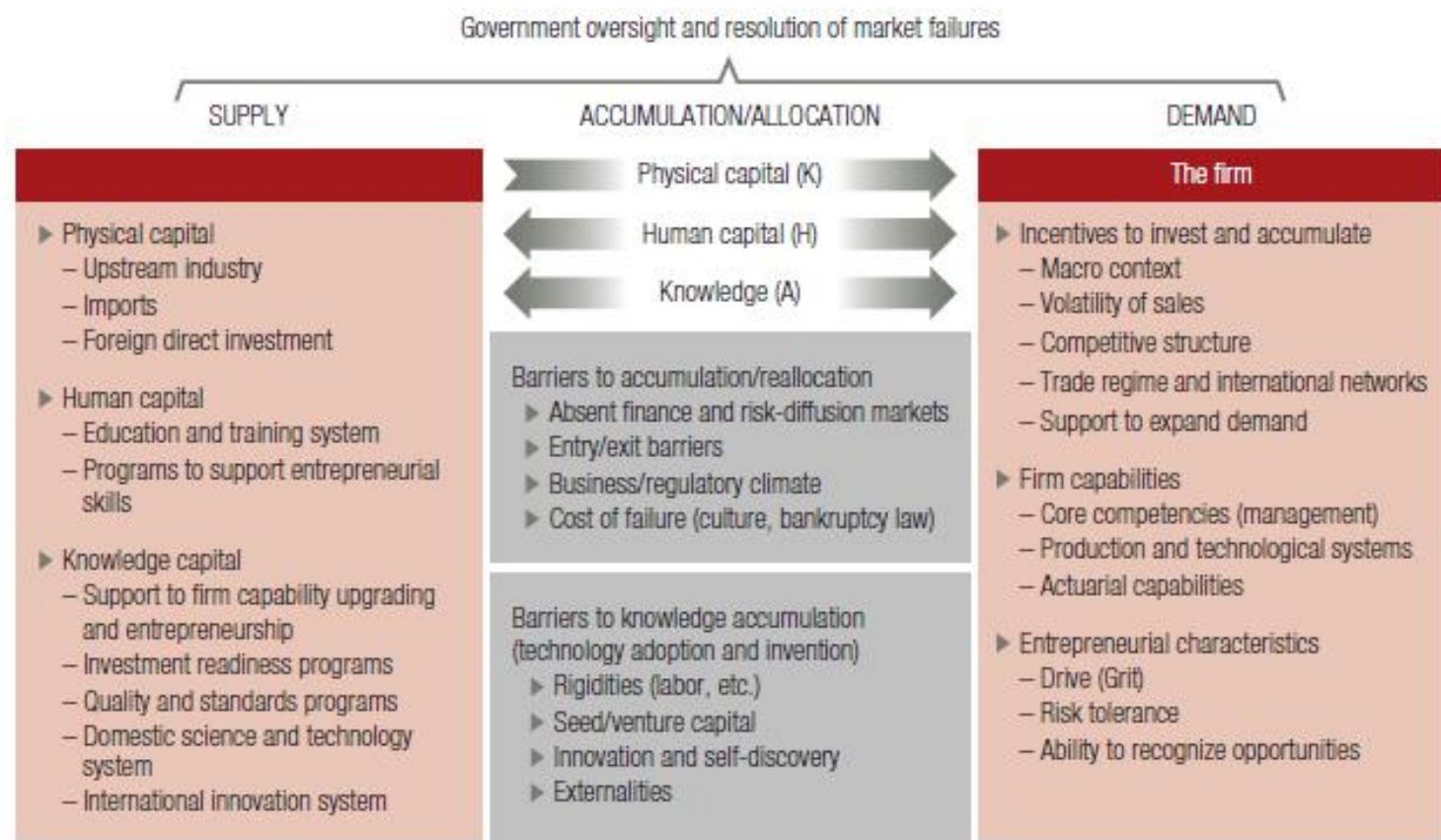
WHAT MATTERS FOR FIRM GROWTH?



- Innovation
- Agglomeration and networks
- Skills & Managerial capabilities
- Global Linkages
- Financial Development

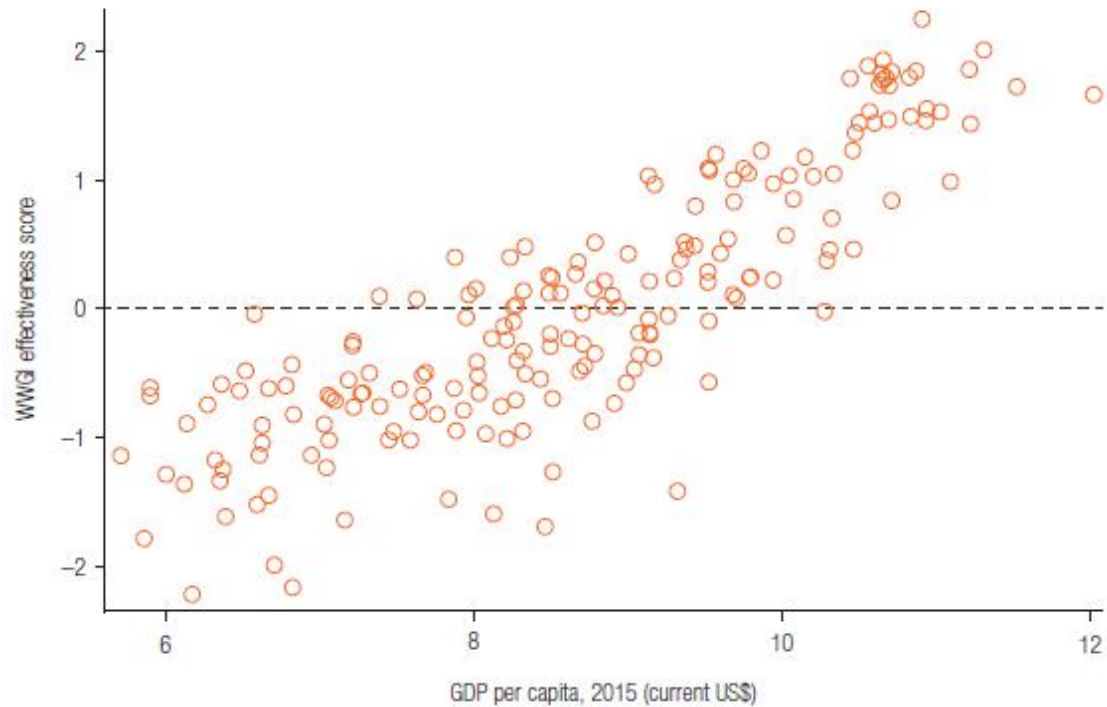
CREATING EXPERIMENTAL SOCIETIES

FIGURE 5.2 The National Productivity System

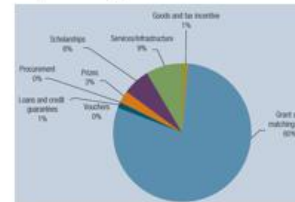


PUBLIC SECTOR PRODUCTIVITY MATTERS AS WELL!

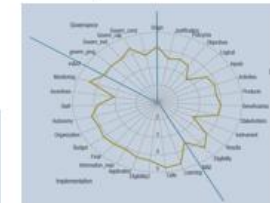
FIGURE 5.3 More Developed Countries Have More Effective Bureaucracies



Portfolio mapping and analysis of the quality of the policy mix



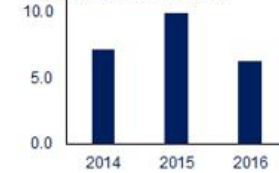
Functional and governance analysis



Efficiency analysis

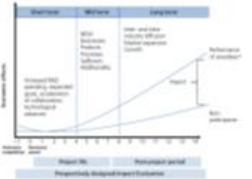
Amount transferred to beneficiaries for every US\$ 1 spent on the administration of the program.

Efficiency ratio (USD thousand)



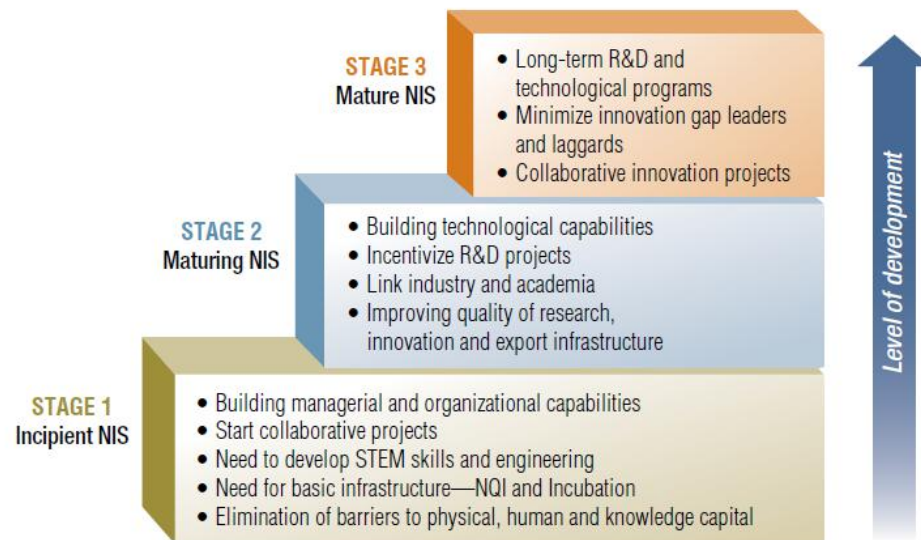
Effectiveness analysis

Impact of STI policies on Innovation and technology adoption



THE CAPABILITIES ESCALATOR

FIGURE 7.2 The Capabilities Escalator: Innovation Policy Needs



Note: NIS = National Innovation System; NQI = national quality infrastructure; R&D = research and development; STEM = science, technology, engineering, and mathematics.

- 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.

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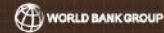


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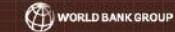


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“Fortune favors the prepared mind” (and countries)
Pasteur (1854)

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