

Productive capabilities, COVID-19 and the future of industrialisation in developing countries

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Outline

- A. The future of industrialisation: trends, challenges and opportunities
- B. Productive capabilities
- C. Lessons from the heterogenous effects of COVID on manufacturing firms in developing countries

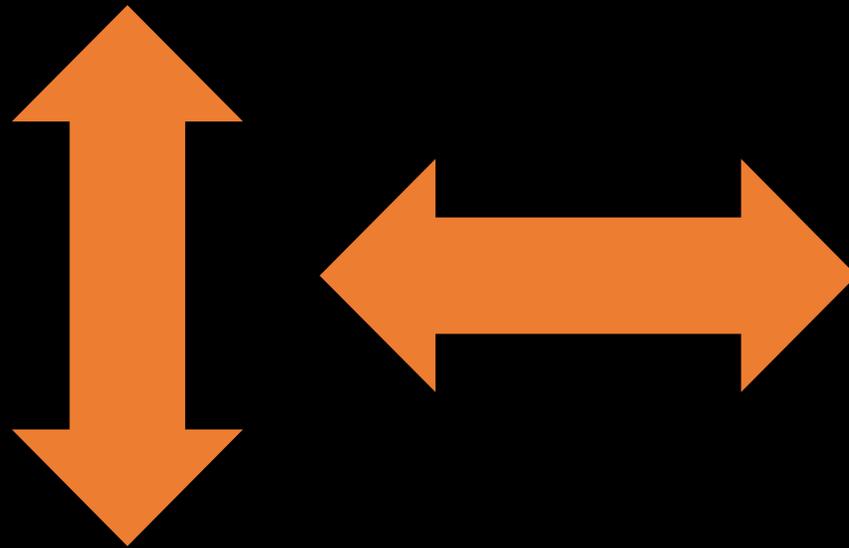
The future of industrialisation: trends, challenges & opportunities

1. Changing boundaries of the 'industrial' and activity-specificity of sectors
2. Value chains
3. 4IR and broader technological change
4. Climate change and green industrialisation
5. Implications of COVID for industrial development and policy

Productive capabilities

- Production and technological capabilities.
- Part of the microfoundations of structural transformation.
- Change in sectoral structure (industrialisation), but also upgrading across sectors.
- Develop through a long process of learning in the production process.
- Collective role of productive capabilities , and collective productive capabilities.
- Important for:
 - Innovation, learning, upgrading, possible leapfrogging
 - Productivity
 - Withstanding competition from imports and growing exports
 - Catching up.

**Country-level
productive capabilities**



**Firm-level productive
capabilities**

**Structural
transformation;
industrialisation;
upgrading;
catching up**

Productive capabilities – developing countries (1)

- Most challenging... yet most needed, in developing countries.
- Provide opportunities for latecomer firms to catch up – push into production of more complex products.
- Late industrialisation and cases of ‘pre-industrial deindustrialisation’.
- Low-level equilibrium traps where:
 - weak productive capabilities components feed into each other.
 - lack of positive feedback loops between productive capabilities and industrialisation.
- Upgrading, dynamic comparative advantage.

Productive capabilities – developing countries (2)

- Digital divide, 4IR → challenges and opportunities for keeping pace and catching up.
- Heterogeneity among developing countries
 - Need country-specific approaches
 - Successes show the possibilities!
- Productive capabilities, structural transformation, catching up won't happen automatically
 - Can't be 'business as usual'!

The impact of COVID-19 on manufacturing enterprise performance in developing and emerging economies

(Tregenna & Naidoo, IDR Background Paper)

- COVID-19 has affected manufacturing worldwide, but unevenly (across countries, sectors, firms).
- *What are the determinants of how COVID-19 has affected manufacturing enterprise outcomes in developing and emerging countries?*
 - How have prior conditions (at firm, sector and national levels) , firm responses and policy interventions shaped firm-level outcomes (closures, employment and sales).

FIRM-LEVEL
DETERMINANTS:

Firm-level prior
conditions

Firm production
response
(adaption)

Firm receipt of
government
support

COUNTRY-LEVEL
DETERMINANTS:

Country-level
prior conditions

Country-level
severity of the
pandemic

Stringency of
country-level
containment
measures

Extent of
country-level
economic
support

$$y_{ijct} = \beta_1 D_{ct} + \beta_2 X_{ijt-1} + \beta_3 R_{ijt} + \beta_4 Z_{ct-1} + \lambda_j + \varepsilon_{ijct}$$

- y_{ict} = firm outcome variables of interest for firm i , in manufacturing sub-sector j in country c at time t [change in employment, sales or firm survival];
- D_{ct} = vector of country-level variables associated with pandemic [severity, containment measures, govt economic support]
- X_{it-1} = vector of prior firm characteristics [technological & production capabilities, etc.]
- R_{it} = variables indicating firm's production response during pandemic and receipt of state support
- Z_{ct-1} = vector of prior country characteristics [CIP, share of manufacturing in GDP, macro conditions etc.]
- λ_j controls for manufacturing sub-sectors at 2- / 4-digit ISIC level
- ε_{ict} = error term.

FIRM-LEVEL
OUTCOMES

Empirical approach

- Data:
 - Merged WBES COVID-19 follow-ups in developing/emerging countries to latest pre-COVID WBES
 - Country-level pandemic data and prior conditions from various sources.
- First control for firm survival.
- Estimate a two-step Heckman selection model.
- Using additional selection variables such as net profit and a dummy if the establishment is part of a larger firm.
- Inverse mills ratio is then included in the final stage regression of employment growth on firm-level and country-level variables.
- Split samples by technology-intensive and vulnerable/resilient sectors.

Summary of key results

- Enterprise survival strongly affected by:
 - having internationally recognised quality certification (part of production capability) [+]; firm size [+].
 - CIP [+]; stringency of containment [-]; pandemic severity [-]; capital account openness [-].
- Employment strongly affected by:
 - Credit line [+]; training [+] (both part of production capability) ; firm size [-]; firm age [+]; firm production response [+]; receipt of government support [+].
 - CIP [+] and a number of other country-level variables.
 - Production capabilities especially important for low-tech firms; technological capabilities for MHT firms.
 - For firms in vulnerable sectors, export intensity [-]; firm production response [+]; manufacturing share [+]; capital account openness[-]; govt consumption expenditure [-]; stringency of containment [-]; severity of pandemic [-] matter more.

Overview of findings

- Noisily estimated - strongly idiosyncratic element.
- Importance of firm-, sector- and country-level prior structural characteristics for firms' robustness and resilience.
- Technological and production capabilities are significant determinants of firm survival and resilience during the pandemic.
- Competitive Industrial Performance Index (CIP) a consistently important positive determinant of enterprise outcomes.
 - Underscores the importance of a strong and sophisticated manufacturing sector for individual enterprise outcomes.
 - Ongoing importance of industrial development, structural transformation and industrial policy.

Conclusion

- COVID-19 has underscored the importance of both productive capacity and productive capabilities in manufacturing, including:
 - Size, sophistication, agility of manufacturing
 - Digital and technological capabilities
 - Both in individual enterprises and at country-level.
- Productive capabilities cannot be built up overnight
 - Partly endogenous to production (scale and type) – learning-by-doing
 - Product of policy choices over time.
- Relevant for other ongoing and future crises and challenges.