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

- $$y_{ijct}$$ = 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] 
- $$X_{ijt-1}$$ = vector of prior firm characteristics [technological & production capabilities, etc.]
- $$R_{ijt}$$ = 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.]
- $$\lambda_j$$ controls for manufacturing sub-sectors at 2- / 4-digit ISIC level
- $$\epsilon_{ijct}$$ = error term.
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.