Structural Transformation and STI in LLDCs: Some Lessons from the Ethiopian Experience

Expert Group Meeting on Science, Technology and Innovation for LLDCs
Strong Growth Maintained Since the Early 2000s

Growth Rates GDP and GDP Per Capita

Levels of GDP Per Capita
Relatively Slow Structural Change
Divergence in Sectoral Growth Emerging
Ethiopia: Agricultural Productivity

Cereal Yield

Agriculture Value Added Per Worker
Issues with Agriculture

• Mixed signals:
  • There has been an increase in crop yield per hectare and agricultural output per worker
  • Non-traditional Ag exports are rising (cut flowers, dairy products, eggs, etc)
  • However, Ag productivity is much lower (40-50%) than that of Asia and Latin America
  • It appears that the productivity gain in smallholder Ag is not sufficient relative to population growth (2.5%)
  • Food prices continue to rise and food security is still a major challenge
  • This has implications for competitiveness of manufacturing
    • Wage effect
    • Supply of raw materials
  • So agriculture has not been a driver of structural transformation
Policy Issues

• Modern input utilization remains low – farmers mainly apply chemical fertilizers

• Joint application of modern inputs is very rare – improved seeds, fertilizer, pesticides and irrigation. More work needed in marketing, credit, knowledge...

• Less than 3% of arable land is irrigated – as it remains expensive

• Modern inputs not used for cash crops/industrial raw materials

• Efforts to expand private (mainly FDI led) commercial agriculture in relatively more arid low lands has faced obstacles in recent years
Manufacturing

• The sector has been growing rapidly since 2005. However, manufacturing growth was not faster than growth in other sectors, at least until recently

• So, it has not been a driver of overall economic growth

• Manufacturing’s share in employment is even lower than its GDP share

• It is not export oriented (less than 5% of firms engage in exports). Hence, it is heavily domestic market oriented – hence not contributing to forex earnings

• But, the sector is heavily dependent on imported intermediate inputs. Abegaz (2018) shows that cost of intermediate inputs is much higher in Africa relative to Asian countries – eliminating the low labor cost advantage of African countries
Key challenges and policy issues in manufacturing

• Private investment in manufacturing remains weak (about 12% of capital stock)
  • Access to credit is a big part of the story but not the only one

• Import penetration rate has been rising over the years, and output growth in manufacturing is negatively correlated with import penetration

• Import intensity of intermediate inputs is very high (weak backward linkages). The industries that use domestic inputs like food processing, leather, etc., tend to grow at a slower rate

• The high import intensity of inputs poses challenges for capacity utilization and competitiveness given foreign exchange scarcity
• Productivity increases substantially with the size of manufacturing firms

• But there is a very high exit rate among very small firms (1 in 3) as compared to larger firms (3 in 100)

• Small firms rarely graduate to become medium and large size firms – post entry job creation is rare
Small and Micro-enterprises face challenges

• While the World Bank Doing Business Report shows improvements in the business environment, this perhaps reflects the investment climate for large firms

• Large firms have a number of advantages
  • Entry regulations are relatively straightforward and transparent
  • They have better access to credit
  • They enjoy strong investment incentives
  • Benefit from export promotion schemes if they choose to do so

• Small and micro-enterprises are not properly incentivized
  • Their credit constraints are substantial (don’t have collateral and relationships with banks)
  • The investment incentives are not designed for them
  • They are subject to multiple, ever changing regulations – to enter, renew license, or even to exit
  • The government agencies responsible for small businesses don’t seem sensitive to the challenges of micro- and small enterprises
Investment Driven Growth – Primarily Public Investment
The public-private Investment Gap Remains Large
Adding New Products (innovation) Strongly Correlated with Firm-level Investment

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<th>Transition to MPF</th>
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<tbody>
<tr>
<td></td>
<td>1</td>
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<tr>
<td>Investment Rate</td>
<td>0.7776*** (0.2085)</td>
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<tr>
<td>Lumpy Investment</td>
<td>0.7698*** (0.1759)</td>
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<tr>
<td>Initial Size</td>
<td>-0.0295 (0.0657)</td>
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<tr>
<td>Young Firm</td>
<td>0.1384 (0.1687)</td>
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<tr>
<td>Initial Productivity</td>
<td>0.0804* (0.0453)</td>
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<tr>
<td>N</td>
<td>3,969</td>
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p-value for hazard proportionality test

0.3260 0.2863 0.4199
Scaling back public investment

• The current administration has expressed intent to reduce public investment in major projects – long over due

• This might help increase private investment

• However, there are a number of challenges
  • State owned banks may not have sufficient liquidity given their exposure to large scale public investment projects
  • Private banks still own a small fraction of the financial sector
  • And they are subject to very strict regulations which have not been relaxed yet
  • Foreign banks are not yet allowed
  • Collateral requirements are extremely high (250% or more)
Growing Economy but Weak Employment Performance in the Formal Sector
Small firms hire less and fire more.
Comparing LLDCs with Coastal Countries

**Sub-Saharan Africa**

GDP Share of Manufacturing

**Developing Countries**

GDP Share of Manufacturing
Comparing LLDCs and Coastal Countries: Exports

Sub-Saharan Africa

Developing Countries

Export-GDP Ratio

Coastal | Landlocked

Coastal | Landlocked
Some remarks

• It is important to recognize the two-way relationship between Economic Structure and STI
  • The structure of the economy defines the scope and intensity of STI
    • The share of agriculture
    • Performance of the private sector
    • Informal Economy
  • STI can contribute to economic structural transformation

• This calls for more specific STI interventions that recognize sector/industry level challenges they face