International Comparison of Manufacturing Performance

A Preliminary Study for Setting Ethiopia’s Light Manufacturing Targets

GRIPS Development Forum
February 2014, Tokyo
 Proposed Vision for Ethiopia 2025

PM Hailemariam (letter to GRIPS dated Sep.2, 2013):
“My vision for the Ethiopian industrial sector is to become The Leader of African Light Manufacturing by the year 2025.”

Industrial Development Strategic Plan (2013-2025), MOI & Adama Univ., revised August & September 2013:
“Building on industrial sector with the highest manufacturing capability in Africa which is diversified, globally competitive, environmentally-friendly, and capable of significantly improving the living standards of the Ethiopian people by the year 2025”

GRIPS Development Forum (letter to PM, Aug.11, 2013):
The proposed vision should be concise, for example,
- “No.1 manufacturing country in Africa”
- “Highest manufacturing capability in Africa”
- “The leader of African manufacturing”
Possible Performance Indicators

(GRIPS letter to PM, Aug.11, 2013)

- Manufacturing **value-added** (USD billion, % of GDP, or per head)
- **Export** of manufactured products (USD billion or % of total export)
- **Net export** of manufactured products (adjusted for imported inputs, USD billion)
- Manufacturing **FDI inflow** (number of projects or USD billion; registration vs. implementation; annual or cumulative)
- Growth contribution of the manufacturing sector (%)
- Composition of manufacturing export weighted by “high-tech” contents
- Global market share & brand recognition (champion products)
Data Issues

What is “manufacturing”?
- Distinguishing manufacture vs. raw materials
  - Processed food vs. agricultural products
  - Furniture components vs. wooden board
  - Jewelry vs. gemstone
- Distinguishing true manufacturing vs. trade & distribution
  - Packaging, drying, combining, final assembly: do they qualify?
  - Traders may disguise themselves as “manufacturers”

→ How much processing makes a product “manufactured”?

What is “light manufacturing”? No common definition.
- Food & beverage, textile, footwear, leather products → YES
- Products of metal, wood, plastic, chemicals & paper →
  Depends: these include handicrafts & simple goods vs. sophisticated products made by large modern equipment
International Standard Industrial Classification (ISIC), Revision 3.1

A - Agriculture, hunting and forestry 01-02
B - Fishing 05
C - Mining and quarrying 10-14
D - Manufacturing 15-37
E - Electricity, gas and water supply 40-41
F - Construction 45
G - Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods 50-52
H - Hotels and restaurants 55
I - Transport, storage and communications 60-64
J - Financial intermediation 65-67
K - Real estate, renting and business activities 70-74
L - Public administration and defence; compulsory social security 75
M - Education 80
N - Health and social work 85
O - Other community, social and personal service activities 90-93
P - Activities of private households as employers and undifferentiated production activities of private households 95-97
Q - Extraterritorial organizations and bodies 99

Secondary industries
# ISIC Revision 3.1, Code D (Manufacturing)

15 - Manufacture of food products and beverages  
16 - Manufacture of tobacco products  
17 - Manufacture of textiles  
18 - Manufacture of wearing apparel; dressing and dyeing of fur  
19 - Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear  
20 - Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials  
21 - Manufacture of paper and paper products  
22 - Publishing, printing and reproduction of recorded media  
23 - Manufacture of coke, refined petroleum products and nuclear fuel  
24 - Manufacture of chemicals and chemical products  
25 - Manufacture of rubber and plastics products (**2519, 2520, etc.**)  
26 - Manufacture of other non-metallic mineral products  
27 - Manufacture of basic metals  
28 - Manufacture of fabricated metal products, except machinery and equipment (**2811-2813, 2893, 2899?**)  
29 - Manufacture of machinery and equipment n.e.c.  
30 - Manufacture of office, accounting and computing machinery  
31 - Manufacture of electrical machinery and apparatus n.e.c.  
32 - Manufacture of radio, television and communication equipment and apparatus  
33 - Manufacture of medical, precision and optical instruments, watches and clocks  
34 - Manufacture of motor vehicles, trailers and semi-trailers  
35 - Manufacture of other transport equipment  
36 - Manufacture of furniture; manufacturing n.e.c. (**3610 furniture, 3691 jewelry, etc.**)  
37 - Recycling

Standard International Trade Classification (SITC) Revision 3

0 - Food and live animals
   00 - Live animals other than animals of division 03
   01 - Meat and meat preparations
   02 - Dairy products and birds' eggs
   03 - Fish (not marine mammals), crustaceans, molluscs and aquatic invertebrates, and preparations thereof
   04 - Cereals and cereal preparations
   05 - Vegetables and fruit
   06 - Sugars, sugar preparations and honey
   07 - Coffee, tea, cocoa, spices, and manufactures thereof
   08 - Feeding stuff for animals (not including unmilled cereals)
   09 - Miscellaneous edible products and preparations

1 - Beverages and tobacco
   11 - Beverages
   12 - Tobacco and tobacco manufactures

2 - Crude materials, inedible, except fuels

3 - Mineral fuels, lubricants and related materials

4 - Animal and vegetable oils, fats and waxes

5 - Chemicals and related products, n.e.s.
(SITC, cont.)

6 - Manufactured goods classified chiefly by material
   61 - Leather, leather manufactures, n.e.s., and dressed furskins
   62 - Rubber manufactures, n.e.s.
   63 - Cork and wood manufactures (excluding furniture)
   64 - Paper, paperboard and articles of paper pulp, of paper or of paperboard
   65 - Textile yarn, fabrics, made-up articles, n.e.s., and related products
   66 - Non-metallic mineral manufactures, n.e.s.
   67 - Iron and steel
   68 - Non-ferrous metals
   69 - Manufactures of metals, n.e.s.

7 - Machinery and transport equipment

8 - Miscellaneous manufactured articles
   81 - Prefabricated buildings; sanitary, plumbing, heating and lighting fixtures and fittings, n.e.s.
   82 - Furniture, and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings
   83 - Travel goods, handbags and similar containers
   84 - Articles of apparel and clothing accessories
   85 - Footwear
   87 - Professional, scientific and controlling instruments and apparatus, n.e.s.
   88 - Photographic apparatus, equipment and supplies and optical goods, n.e.s.; watches and clocks
   89 - Miscellaneous manufactured articles, n.e.s.

9 - Commodities and transactions not classified elsewhere in the SITC

More About Data

- Define “Africa” (all or Sub-Saharan or Continental?)
- Refer to Asian data for additional perspective.
- ISIC (all sectors) and SITC (traded goods only) are quite different and do not match well.
- Missing or unreliable data for both Ethiopia and competitor countries

Due to data problem, the following steps should be considered:

1/ General data review & country performance comparison
2/ Select a small number of variables to be monitored
3/ Select a small number of potential competitor countries (2/ & 3/ to be revised when necessary)
4/ Collect relevant data for selected countries for benchmarking and monitoring progress
# International Organization Databases

<table>
<thead>
<tr>
<th>Database</th>
<th>Manufacturing data availability</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>International Trade Center (ITC)</td>
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<td><a href="http://www.intracen.org/">http://www.intracen.org/</a></td>
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<td>N.A.</td>
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<td>Fairly complete, 2000-2012</td>
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<td>• Compiled from UNCTAD, COMTRADE, UN trade database, etc.</td>
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<td>Product group data available,</td>
<td>• Product group data available for FDI</td>
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<td>limited African country data,</td>
<td>• Limited data for Africa</td>
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<td>World Development Indicators (WDI)</td>
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<td>Product group data available,</td>
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<td>good country coverage, 1960-2012</td>
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<td>• Product group data available for VA, export &amp; import</td>
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<td>• Good country coverage</td>
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<td>• No product group data for FDI</td>
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<td>UNCTAD stat</td>
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<td><a href="http://unctadstat.unctad.org">http://unctadstat.unctad.org</a></td>
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<td>Fairly complete, 1970-2011</td>
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<td>Fairly complete, 1995-2012</td>
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<td>country coverage, 2009-2012</td>
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<td>• Detailed product group data available for export/import</td>
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<td>• Good country coverage</td>
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Note: All data are accessible via internet free of charge. Additionally, GDP is available from WDI (1960-2012) and UNCTAD stat (1970-2012); population is available from WDI (1960-2012) and UNCTAD stat (1970-2050f).
(1) Manufacturing Value Added
(% of GDP, latest available data)


Note: Data are for 2012. For countries with no 2012 data, data for the latest available year are used.
Manufacturing Value Added per Head
(USD, latest available data)


Note: Data are for 2012. For countries with no 2012 data, data for the latest available year are used.
Manufacturing Value Added: Asia (% of GDP)

(2) Manufactured Export (USD billion)

China $1,923.8b, Korea $466.3b, Singapore $285.1b


Note: Data are for 2012. For countries with no 2012 data, latest available data are used.
Net Manufactured Export (USD billion)
(Manuf. export - manuf. import)

$ billion

Note: Data are for 2012. For countries with no 2012 data, latest available data are used.
Manufactured Export
(% of total export, latest available data)

% of total export

Note: Data are for 2012. For countries with no 2012 data, latest available data are used.
Manufactured Export: Asia
(% of total export)

Manufactured Export: Africa
(\% of total export)

Asia: Light Manufactured Export

Source: UNCTADstat, accessed Nov. 2013. Light manufacturing is defined using SITC as shown in previous slide.
Asia: Net Light Manufactured Export
(LM Export – LM Import)

China: 319 bil USD/532 bil USD

Source: UNCTADstat, accessed Nov. 2013. Light manufacturing is defined using SITC as shown in previous slide.
Africa: Light Manufactured Export

Source: UNCTADstat, accessed Nov. 2013. Light manufacturing is defined using SITC as shown in previous slide.
Africa: Net Light Manufactured Export
(LM Export – LM Import)

Source: UNCTADstat, accessed Nov. 2013. Light manufacturing is defined using SITC as shown in previous slide.
(3) FDI Inflow in Secondary Industries
(Annual Average of 2003-2012)

Unit: USD billion

China $39.9 billion

Sources: International Trade Centre (World Bank and UNCTAD) and Ethiopian Investment Agency.
Note: Preliminary calculation from ITC database. Average inflow during 2003–2012. Average of available years only when there are missing data. Data definition and quality need to be confirmed. For Ethiopia, average manufacturing FDI inflow for 2004–2013 (EIA data).
Ethiopia: FDI Inflow (EIA Data)

Source: Ethiopian Investment Agency.
Note 1. Light manufacturing is defined as products of food, textile, leather, wood, furniture & jewelry. “Other” manufacturing does not include machinery assembly.

Note 2. Figures here are far smaller than manufacturing FDI in the previous slide. The gap is too wide (5-8 times in recent years) to be explained by differences in definition.
About EIA Data

Based on the letter of Mr. Fitsum Arega, EIA Director (Feb. 2014):

**Monitoring project status**
- EIA has seven sectoral teams that follow up the progress of registered projects (priority projects only) – coverage, duration and frequency of monitoring?
- Old projects still in “pre-implementation” and “implementation” stage will be canceled unless good reason is shown by Feb. 7, 2014 – may we know the result?

**EIA’s data coverage**
- EIA uses ISIC codes (reported by investor) – then identification of light manufacturing by code relatively easy?
- EIA does not cover mining (MoM); or hospitals, higher education & tour operation (respective federal or regional agencies).
- Positive-listed services are handled by EIA; FDI is not permitted in trade & distribution – no traders in manufacturing disguise?
- Ayka has four projects totaling Birr 1.334 billion (<$100 million) – sounds small?
Tentative Conclusion

- Ethiopia’s current (light) manufacturing capability is very limited by global standards. There is a long way ahead.
- However, recent light manufacturing FDI inflow and rising investor interest in Ethiopia are good signs.
- The meaning of “becoming the leader in African light manufacturing” must be defined. It does not have to mean becoming No.1 in every variable.
- Some suggestions for (light) manufacturing targets:
  - Aim at 15-20% of GDP (currently less than 5%)
  - Move from near-zero to persistently positive trade balance in (light) manufacturing—it is difficult to quickly become a large net exporter of manufacturing.
  - Become No.1 in attracting light manufacturing FDI in Africa; market Ethiopia as a new relocation destination for LM.
  - Create at least three export champions in this category.
Potential Competitor Countries
A Very Preliminary List

The following countries were most frequently ranked Top 10 in Africa in our bar charts (except net manufactured export)
- Egypt, Morocco, Tunisia (6)
- Mauritius, Namibia (5)
- Botswana, S. Africa (4)
- Cote d’Ivoire, Swaziland (3)
- Algeria, Ghana, Kenya, Madagascar (2)
- Angola, Cameroon, Malawi, Mozambique, Nigeria, Senegal, Tanzania, Togo, Uganda, Zambia, Zimbabwe (1)

With further analysis, a small number of potential competitors for Ethiopia should be identified, and benchmarking and monitoring should be conducted.
Suggestions for Next Steps

- Ethiopia should have its own definition of “light manufacturing” to fit its policy objective. My suggestion, based on SITC/ISIC, was indicated in this PPT.

- Prepare and improve Ethiopian data (VA, trade, FDI) for international comparison and monitoring progress during GTP2 and toward 2025.
  - Classify activities/projects into 2-digit ISIC or SITC
  - Especially for agro and mining sectors, distinguish raw materials and processed goods
  - Distinguish true manufacturing and trade/distribution

- Press international organizations and research centers for more effort in collecting and analyzing light manufacturing data in Africa (UNCTAD, WB, ACET…)

- Conduct a study on where the country currently stands in light manufacturing, to define the starting point toward Vision 2025 (part of GTP2 preparation?)