Structural Change for Inclusive and Sustainable Industrial Development

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Frank Van Rompaey
Structural change and manufacturing

Manufacturing’s share of GDP rises as economies develop and falls as they become wealthy, following an inverted U curve

Manufacturing share in an economy

Manufacturing’s share of output share typically peaks at 30 to 40 percent; employment peak varies based on mix of industries

Low income
Largely agricultural economy

Mid-Income
Industrialization and urbanization

High income
Service economy

Income level
Geary-Khamis dollars (1990)¹

1 The 1990 Geary-Khamis dollar, or 1990 international dollar, is a hypothetical currency unit that allows international comparisons adjusted for exchange rates and purchasing power parity.

SOURCE: McKinsey Global Institute analysis
Structural change and manufacturing... country-average shares

Manufacturing value added shares to GDP

Manufacturing employment shares to total employment

Log(x): GDP per capita (Constant 2005 US$)


Pre-1990

Post-1990

Log(x): GDP per capita (Constant 2005 US$)

Source: Authors’ elaboration based on Groningen Growth and Development Centre (2012a, b, c), International Labour Organization (2012a, b) and Timmer et al. (2015); Share calculation: Countries’ average (Manufacturing employment / Total employment); All economies: n=109 (1970-1990); n=124 (1991-2012)
Structural change and manufacturing...

Share of aggregate MVA in the total GDP of developing countries (at 2005 constant price)

Share of aggregate manufacturing employment in the total employment of developing countries

Structural change within manufacturing...

Source: UNIDO’s elaboration based on CIC 2009; UNIDO Database (2012a).
Structural change within manufacturing...
...increasing sophistication and diversification
Structural change within manufacturing-development patterns

- Food and beverages
- Wearing apparel
- Textiles
- Chemicals
- Electrical machinery and apparatus
- Fabricated metals
- Basic metals
- Motor vehicles

VA per capita (US$)

Real GDP per capita (US$)
Food and beverages

Textiles

Wearing apparel

Manufacturing value added per capita (2005 $)

Source: UNIDO elaboration based on UNIDO INDSTAT 2
Wearing apparel

Rubber and plastics

Fabricated metals

Basic metals

Motor vehicles

Chemical

Machinery and equipment

Electrical machinery and apparatus

Textiles

Source: UNIDO elaboration based on UNIDO INDSTAT 2
Inclusive Industrial Development - manuf. employment

Development patterns, All countries

- Textiles
- Food and beverage
- Fabricated metals
- Machinery and equipment
- Electrical machinery and apparatus
- Motor vehicles
- Basic metals
- Wearing apparel
- Chemical
- Rubber and plastics
- Chemicals
- Rubber and Plastics
- Food and Beverages
- Textiles
- Wearing Apparel
- Basic metals
- Fabricated metals
- Machinery and Equipment
- Electrical Machinery
- Motor vehicles

Source: Estimated based on UNIDO INDSTAT2
Sustainable Industrial Development...

**CO2 emissions**

<table>
<thead>
<tr>
<th>Growth (percent)</th>
<th>High income</th>
<th>Upper-middle income</th>
<th>Lower-medium income</th>
<th>Low income</th>
</tr>
</thead>
</table>

**Material Use**

<table>
<thead>
<tr>
<th>Growth (percent)</th>
<th>High income</th>
<th>Upper-middle income</th>
<th>Lower-medium income</th>
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</tr>
</thead>
</table>

Source: Mazzanti and Nicolli (2017) based on the Eora Multi-Region Input-Output database
Industrial policy: UNIDO’s position

✓ Process-oriented, multi-stakeholder-driven, flexible

✓ Strategic approach

✓ No ‘one-size-fits-all’

✓ Supporting and challenging

✓ Ensuring impact
Towards a strategic approach

**Attractiveness of industry**
- Growth dimension
  - Industry specific economic growth effect (+)
  - World market size (+)
  - Market growth (+)
  - Competitive pressure (-)
- Pro-poor dimension
  - Industry specific employment effect (+)
  - Inclusive growth (+)
- Environmental dimension
  - Energy & material efficiency (+)
  - Resource depletion (-)

**Strategic feasibility**
- Technological capabilities and other policy relevant country factors (education, technology, incentives, institutions, etc.)
- Static country factors (country size, factor endowments, population density, etc.)
Thank you
Manufacturing employment and manufacturing-related service employment

Germany: textiles and wearing apparel

Germany: motor vehicle industry

Source: UNIDO elaboration based on World Input Output Database 2015
<table>
<thead>
<tr>
<th>ISIC full description</th>
<th>Abbreviation used in this report</th>
<th>ISIC code Revision 3</th>
<th>Technology group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food and beverages</td>
<td>Food and beverages</td>
<td>15</td>
<td>Low tech</td>
</tr>
<tr>
<td>Tobacco products</td>
<td>Tobacco</td>
<td>16</td>
<td>Low tech</td>
</tr>
<tr>
<td>Textiles</td>
<td>Textiles</td>
<td>17</td>
<td>Low tech</td>
</tr>
<tr>
<td>Wearing apparel, and fur &amp; leather products, and footwear</td>
<td>Wearing apparel</td>
<td>18 &amp; 19</td>
<td>Low tech</td>
</tr>
<tr>
<td>Wood products (excluding furniture)</td>
<td>Wood products</td>
<td>20</td>
<td>Low tech</td>
</tr>
<tr>
<td>Paper and paper products</td>
<td>Paper</td>
<td>21</td>
<td>Low tech</td>
</tr>
<tr>
<td>Printing and publishing</td>
<td>Printing and publishing</td>
<td>22</td>
<td>Low tech</td>
</tr>
<tr>
<td>Furniture; manufacturing n.e.c.</td>
<td>Furniture, n.e.c.</td>
<td>36</td>
<td>Low tech</td>
</tr>
<tr>
<td>Coke, refined petroleum products, and nuclear fuel</td>
<td>Coke and refined petroleum</td>
<td>23</td>
<td>Low/medium tech</td>
</tr>
<tr>
<td>Rubber and plastic products</td>
<td>Rubber and plastic</td>
<td>25</td>
<td>Low/medium tech</td>
</tr>
<tr>
<td>Non-metallic mineral products</td>
<td>Non-metallic minerals</td>
<td>26</td>
<td>Low/medium tech</td>
</tr>
<tr>
<td>Basic metals</td>
<td>Basic metals</td>
<td>27</td>
<td>Low/medium tech</td>
</tr>
<tr>
<td>Fabricated metal products</td>
<td>Fabricated metals</td>
<td>28</td>
<td>Low/medium tech</td>
</tr>
<tr>
<td>Chemicals and chemical products</td>
<td>Chemicals</td>
<td>24</td>
<td>Medium/high tech</td>
</tr>
<tr>
<td>Machinery and equipment n.e.c. &amp; office, accounting, computing machinery</td>
<td>Machinery and equipment</td>
<td>29 &amp; 30</td>
<td>Medium/high tech</td>
</tr>
<tr>
<td>Electrical machinery and apparatus &amp; radio, television, and communication equipment</td>
<td>Electrical machinery and apparatus</td>
<td>31 &amp; 32</td>
<td>Medium/high tech</td>
</tr>
<tr>
<td>Medical, precision and optical instruments</td>
<td>Precision instruments</td>
<td>33</td>
<td>Medium/high tech</td>
</tr>
<tr>
<td>Motor vehicles, trailers, semi-trailers &amp; other transport equipment</td>
<td>Motor vehicles</td>
<td>34 &amp; 35</td>
<td>Medium/high tech</td>
</tr>
</tbody>
</table>

n.e.c = not elsewhere classified.
Note: Shades rows represents the manufacturing industries analysed ISIC=International Standard of Industry Classification
Source: UNIDO’s elaboration based on UNIDO Database (UNIDO 2012a).