

# 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

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- **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

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(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

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## 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

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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)

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- 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**

(Source) <http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=17>

# Standard International Trade Classification (SITC) Revision 3

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## **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**

(Source) <http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=14>



# More About Data

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- ❑ 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:

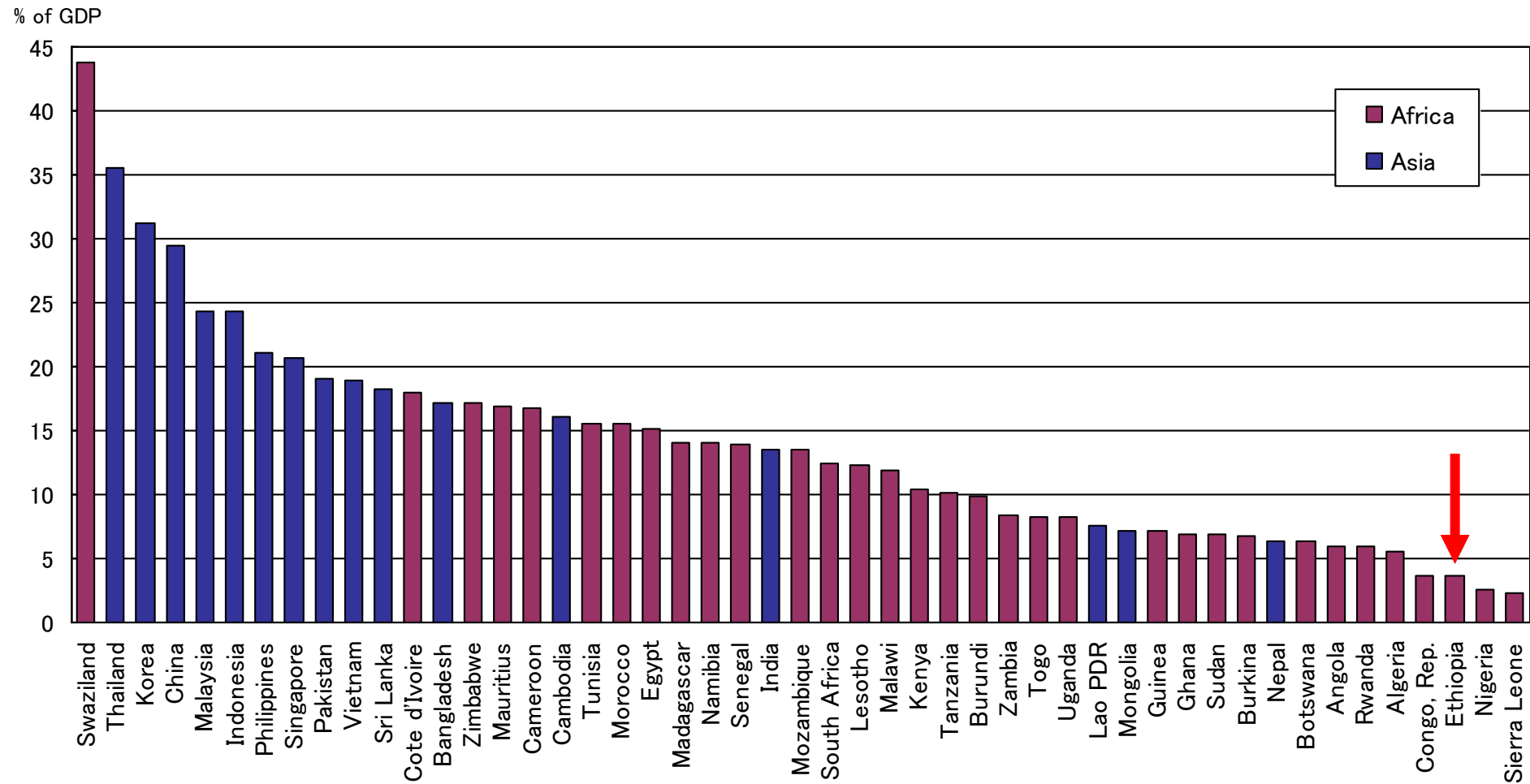
- 1/ General data review & country performance comparison
- 2/ Select a small number of variables to be monitored
- 3/ Select a small number of potential competitor countries  
(2/ & 3/ to be revised when necessary)
- 4/ Collect relevant data for selected countries for benchmarking and monitoring progress

# International Organization Databases

Database	Manufacturing data availability			Remarks
	Value added	Export & import	FDI flow & stock	
<b>International Trade Center (ITC)</b> <a href="http://www.intracen.org/">http://www.intracen.org/</a>	N.A.	Limited Product group data available, limited African country data, 2000-2012	Fairly complete, 2000-2012	<ul style="list-style-type: none"> <li>• Compiled from UNCTAD, COMTRADE, UN trade database, etc.</li> <li>• Product group data available for FDI</li> <li>• Limited data for Africa</li> </ul>
<b>World Development Indicators (WDI)</b> <a href="http://data.worldbank.org/products/wdi">http://data.worldbank.org/products/wdi</a>	Fairly complete, 1960-2012	Limited Product group data available, good country coverage, 1960-2012	N.A.	<ul style="list-style-type: none"> <li>• Product group data available for VA, export &amp; import</li> <li>• Good country coverage</li> <li>• No product group data for FDI</li> </ul>
<b>UNCTAD stat</b> <a href="http://unctadstat.unctad.org">http://unctadstat.unctad.org</a>	Fairly complete, 1970-2011	Fairly complete, 1995-2012	Limited No sectorial data but good country coverage, 2009-2012	<ul style="list-style-type: none"> <li>• Detailed product group data available for export/import</li> <li>• Good country coverage</li> <li>• No product group data for FDI</li> </ul>

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).

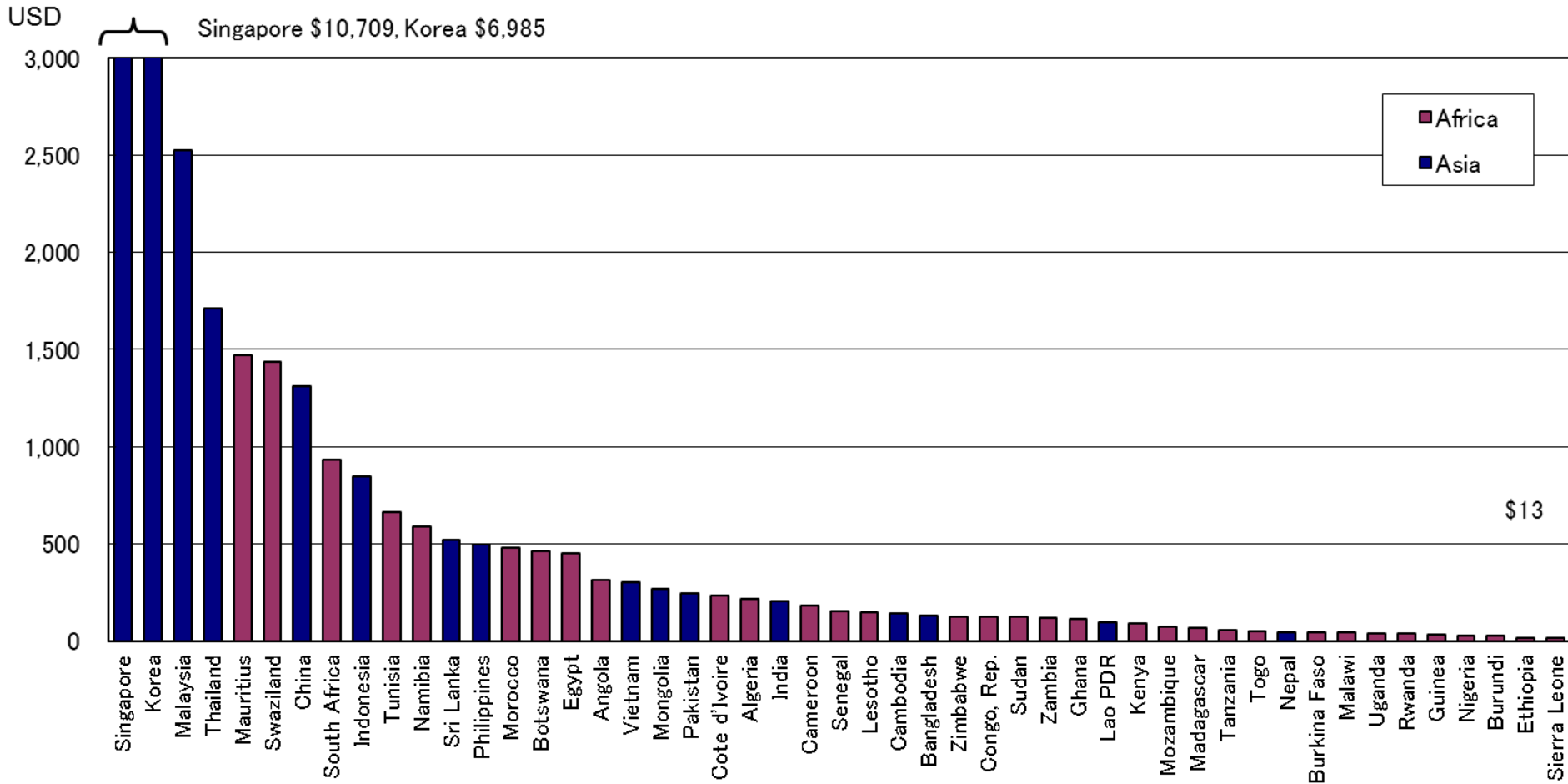
# (1) Manufacturing Value Added (% of GDP, latest available data)



Source: World Bank, World Development Indicators database (accessed Oct.30, 2013).

Note: Data are for 2012. For countries with no 2012 data, data for the latest available year are used.

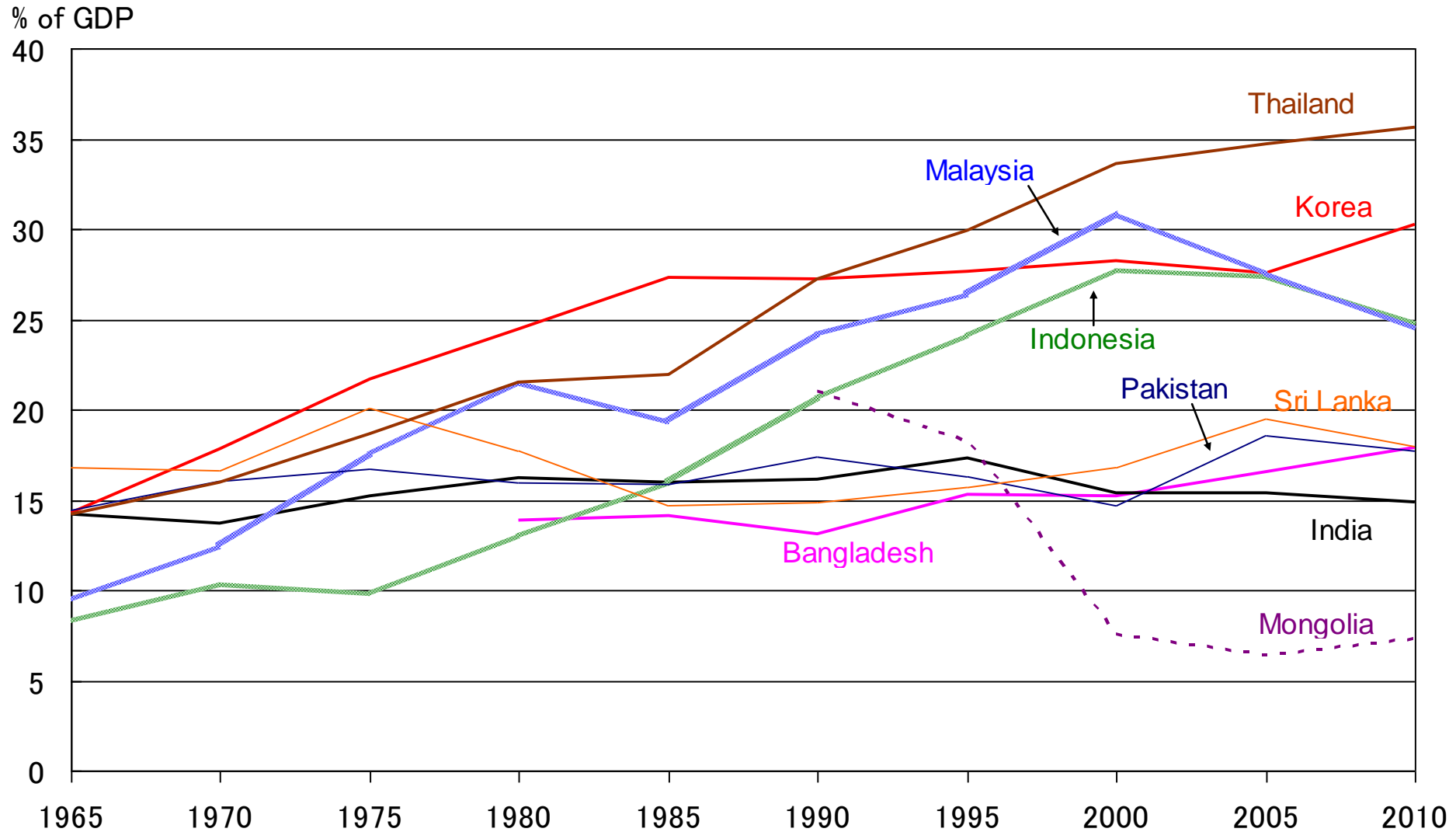
# Manufacturing Value Added per Head (USD, latest available data)



Source: World Bank, World Development Indicators database (accessed Oct. 30, 2013).

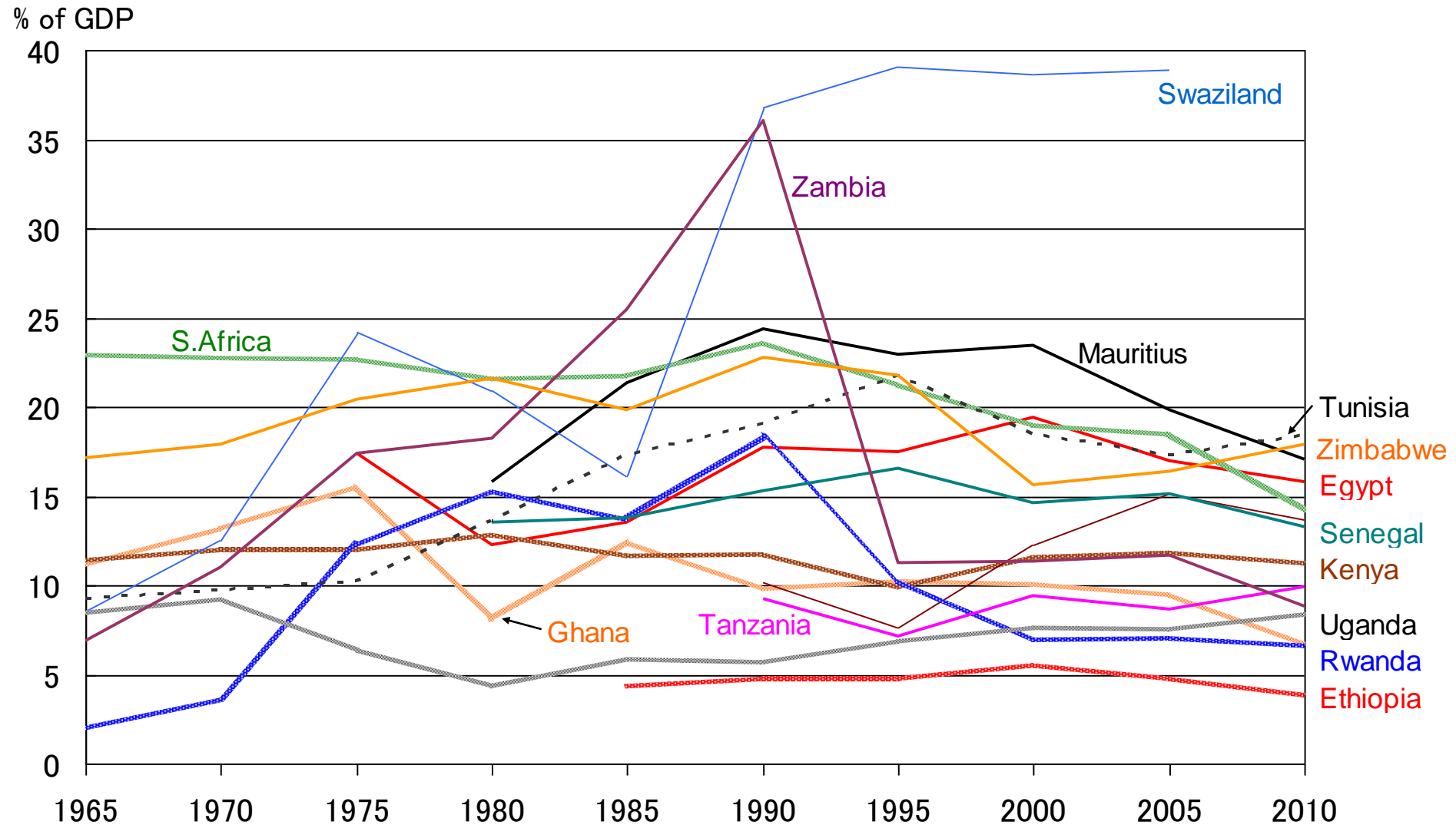
Note: Data are for 2012. For countries with no 2012 data, data for the latest available year are used.

# Manufacturing Value Added: Asia (% of GDP)

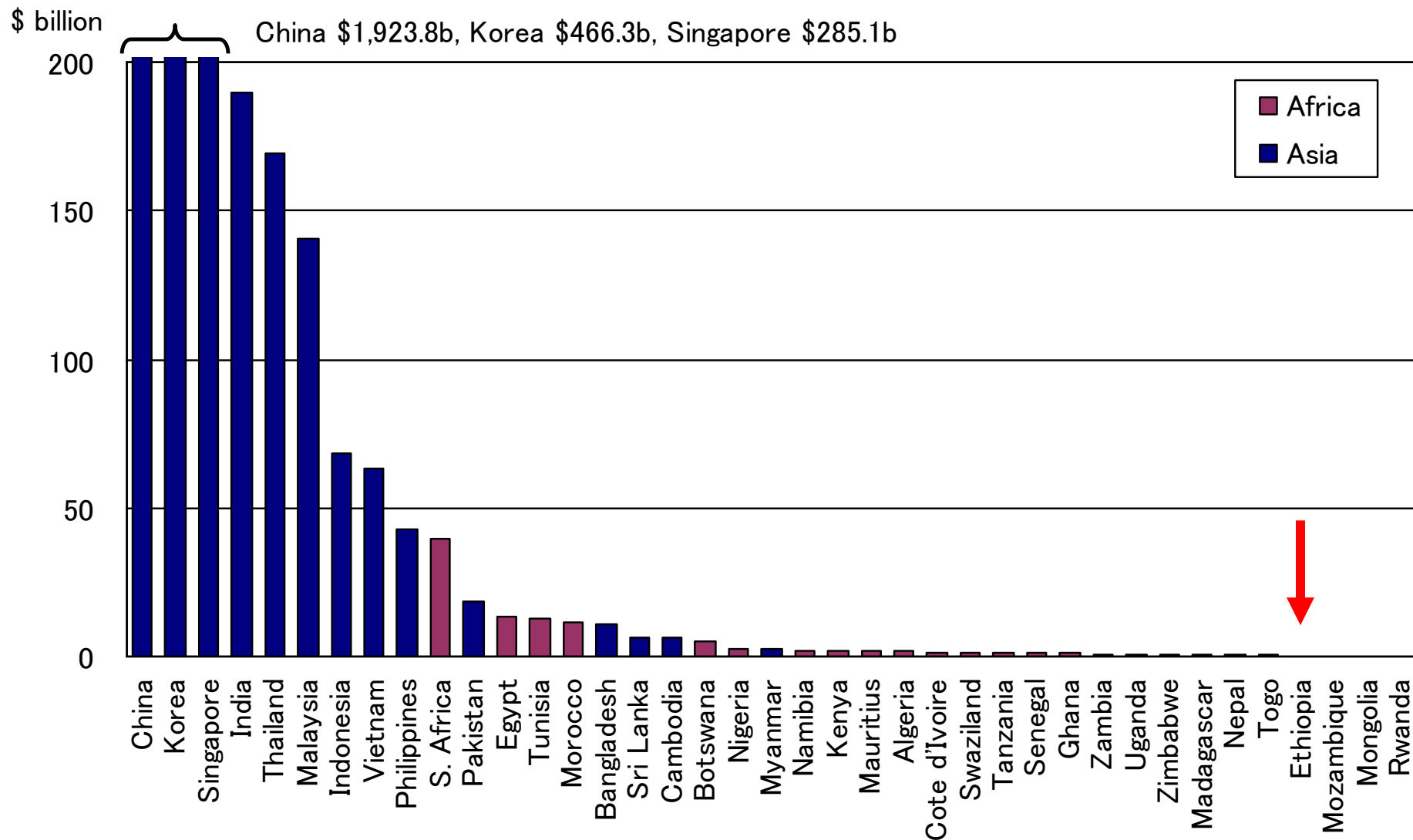


Source: World Bank, World Development Indicators database (accessed Oct. 30, 2013)

# Manufacturing Value Added: Africa (% of GDP)



## (2) Manufactured Export (USD billion)

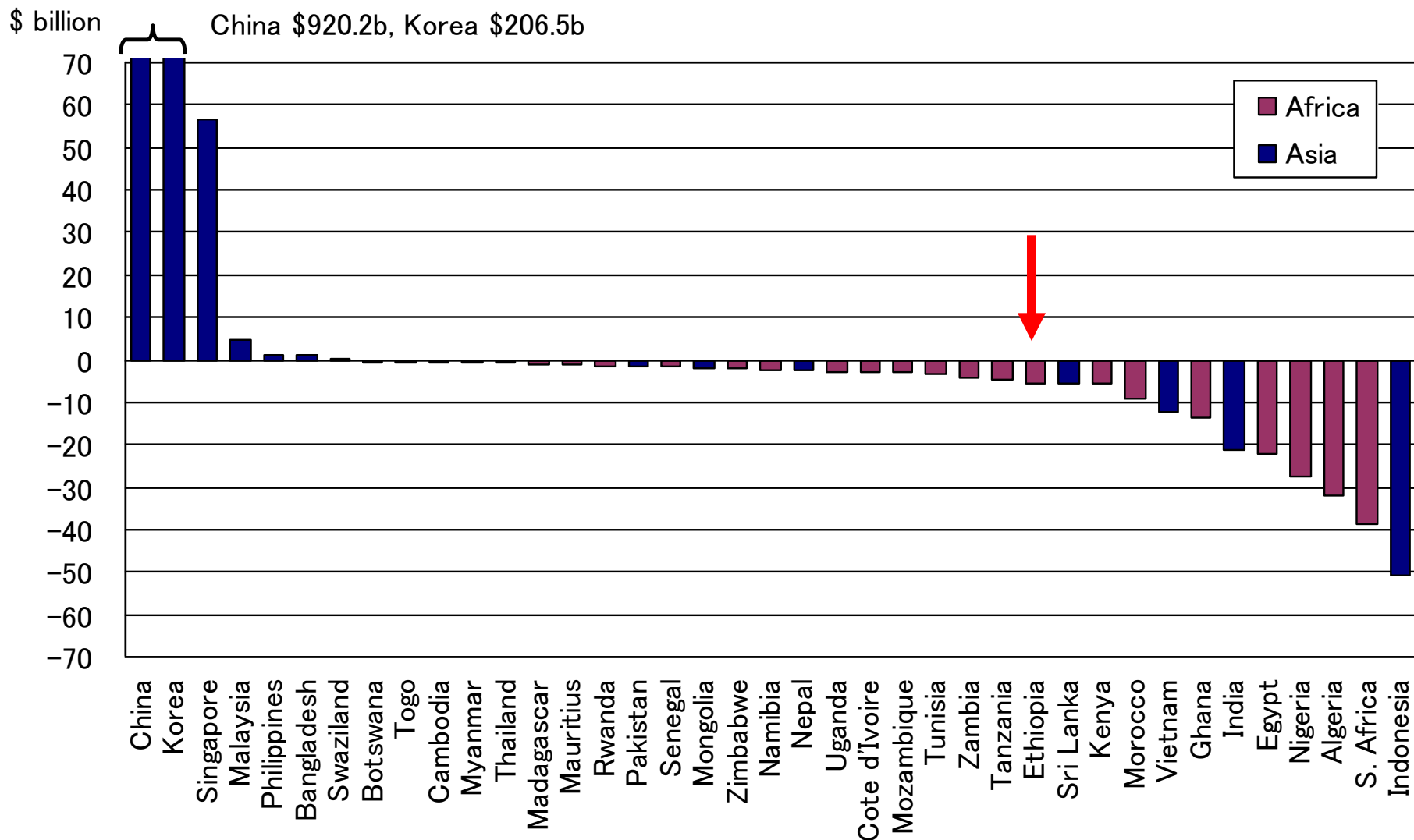


Source: World Bank, World Development Indicators database (accessed Oct. 30, 2013).

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)



Source: World Bank, World Development Indicators database (accessed Oct. 30, 2013).

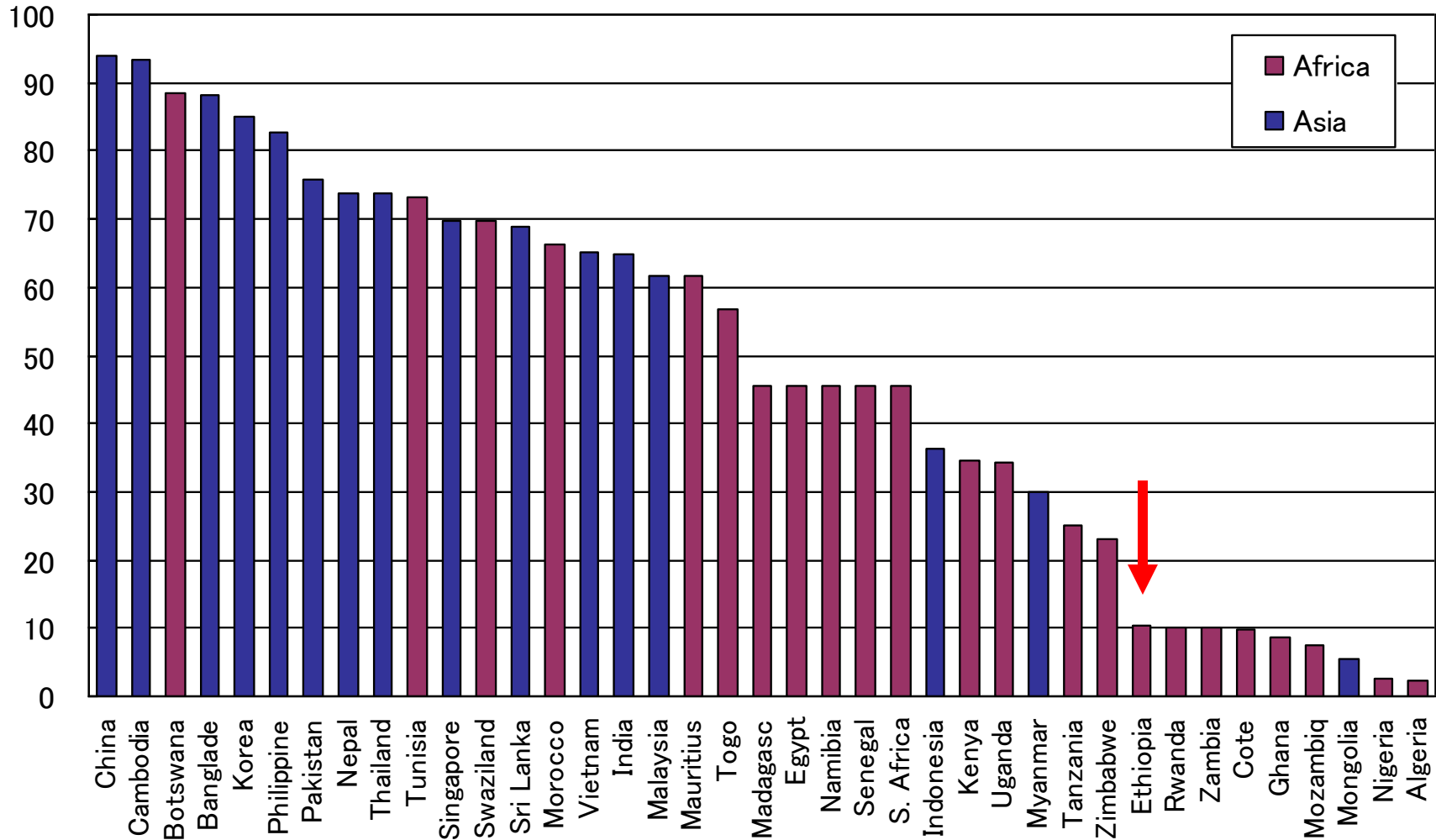
Note: Data are for 2012. For countries with no 2012 data, latest available data are used.



# Manufactured Export

(% of total export, latest available data)

% of total export

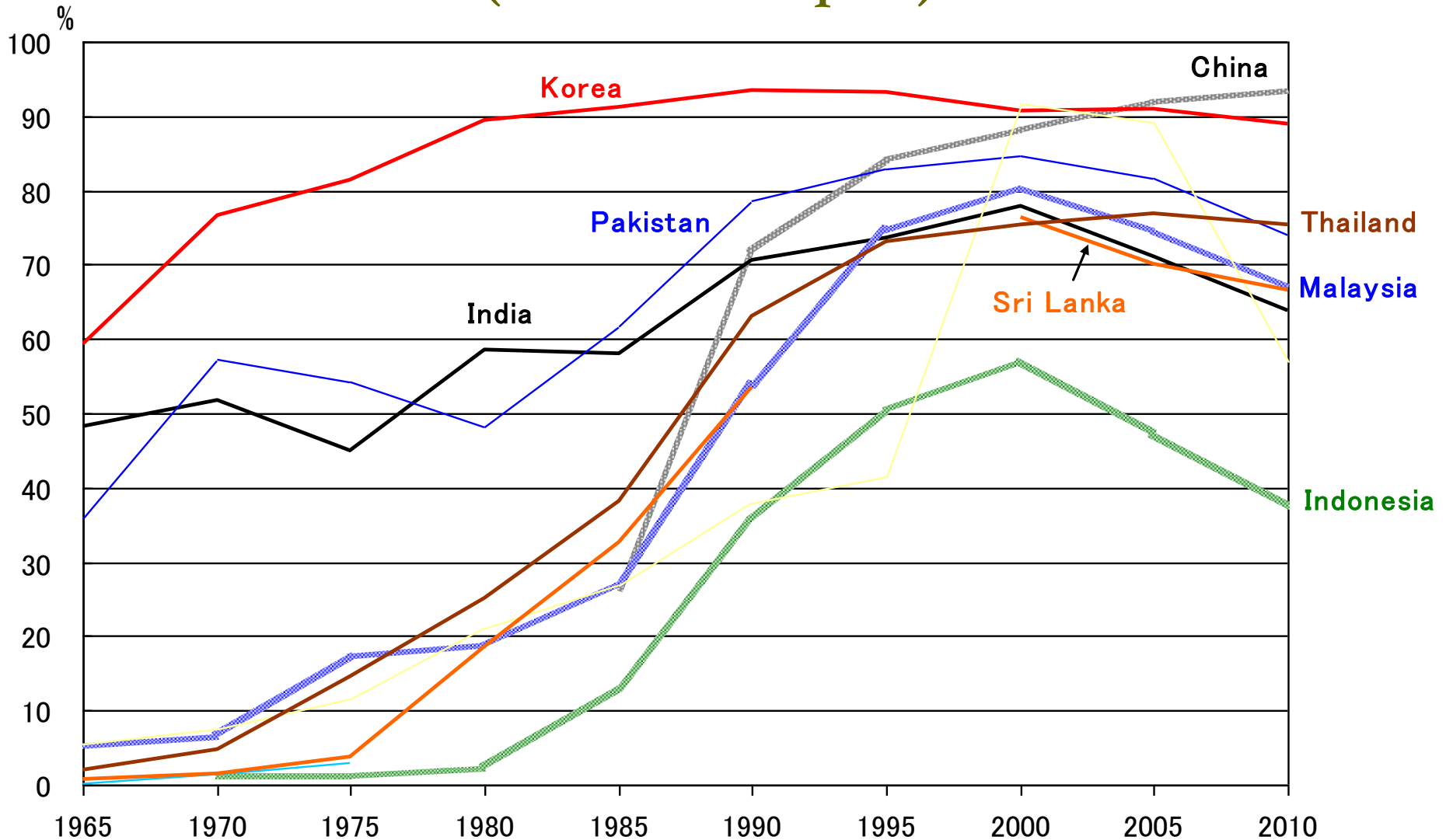


Source: World Bank, World Development Indicators database (accessed Oct. 30, 2013).

Note: Data are for 2012. For countries with no 2012 data, latest available data are used.

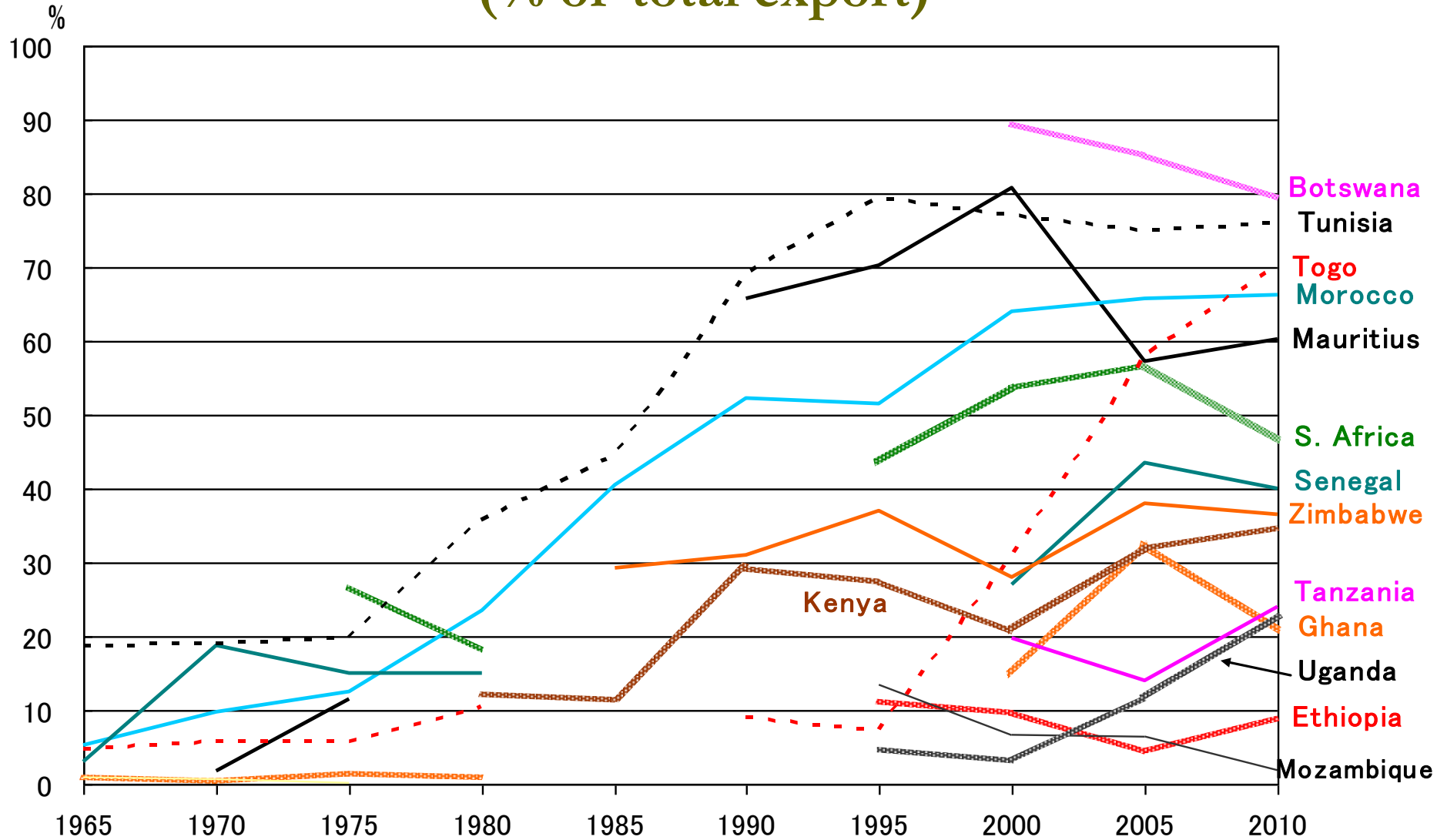
# Manufactured Export: Asia

## (% of total export)

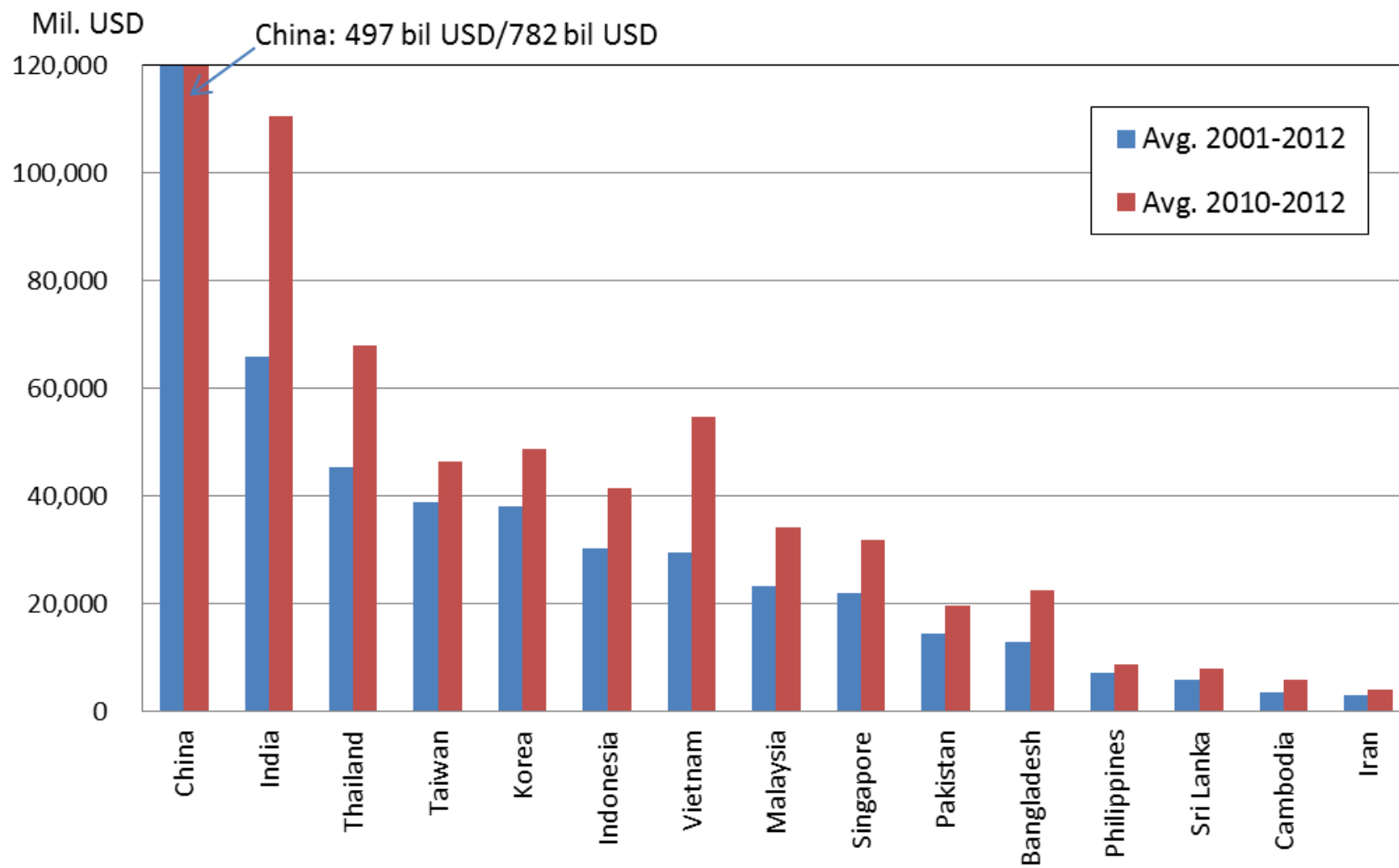


# Manufactured Export: Africa

## (% of total export)

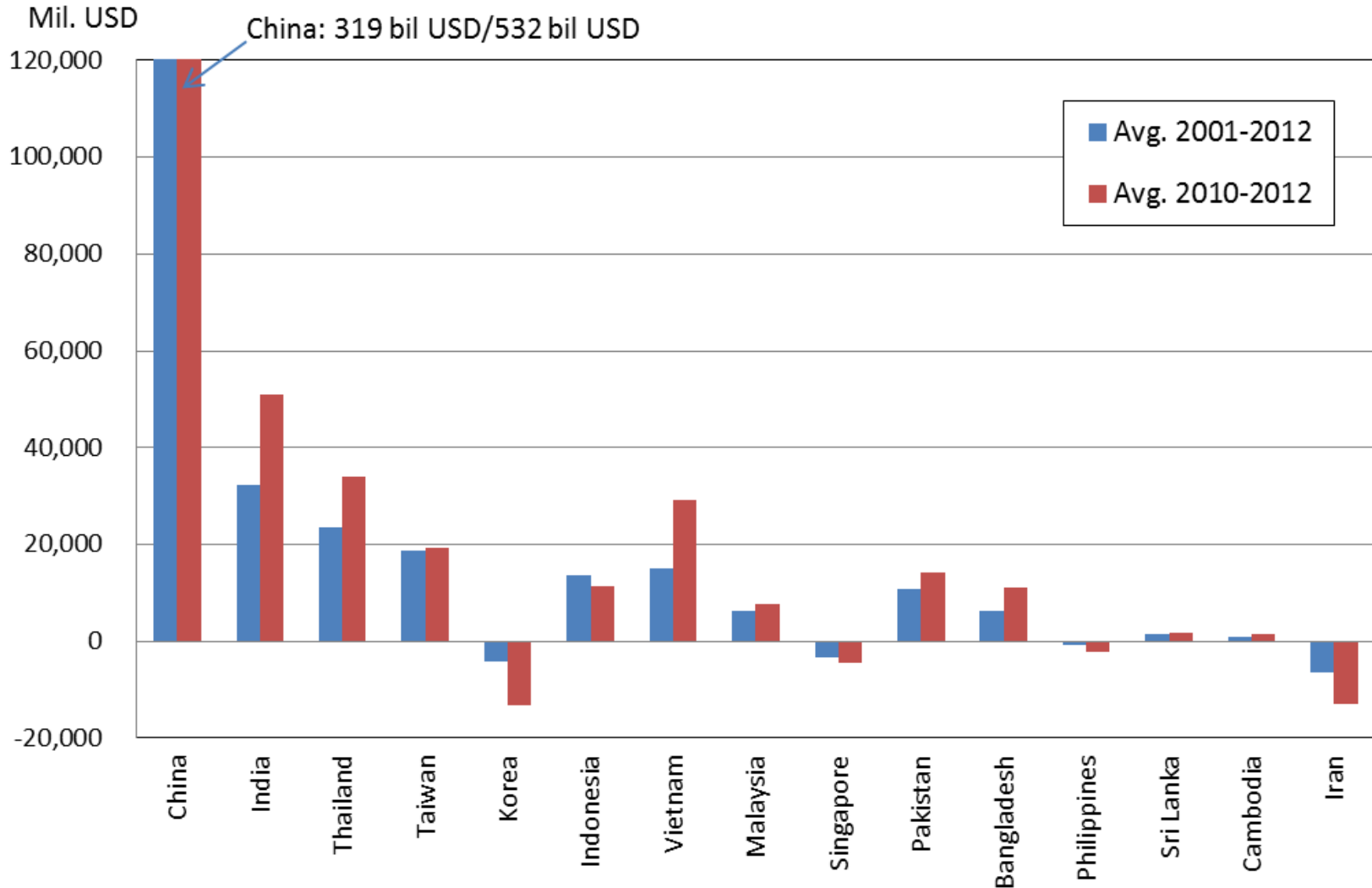


# Asia: Light Manufactured Export



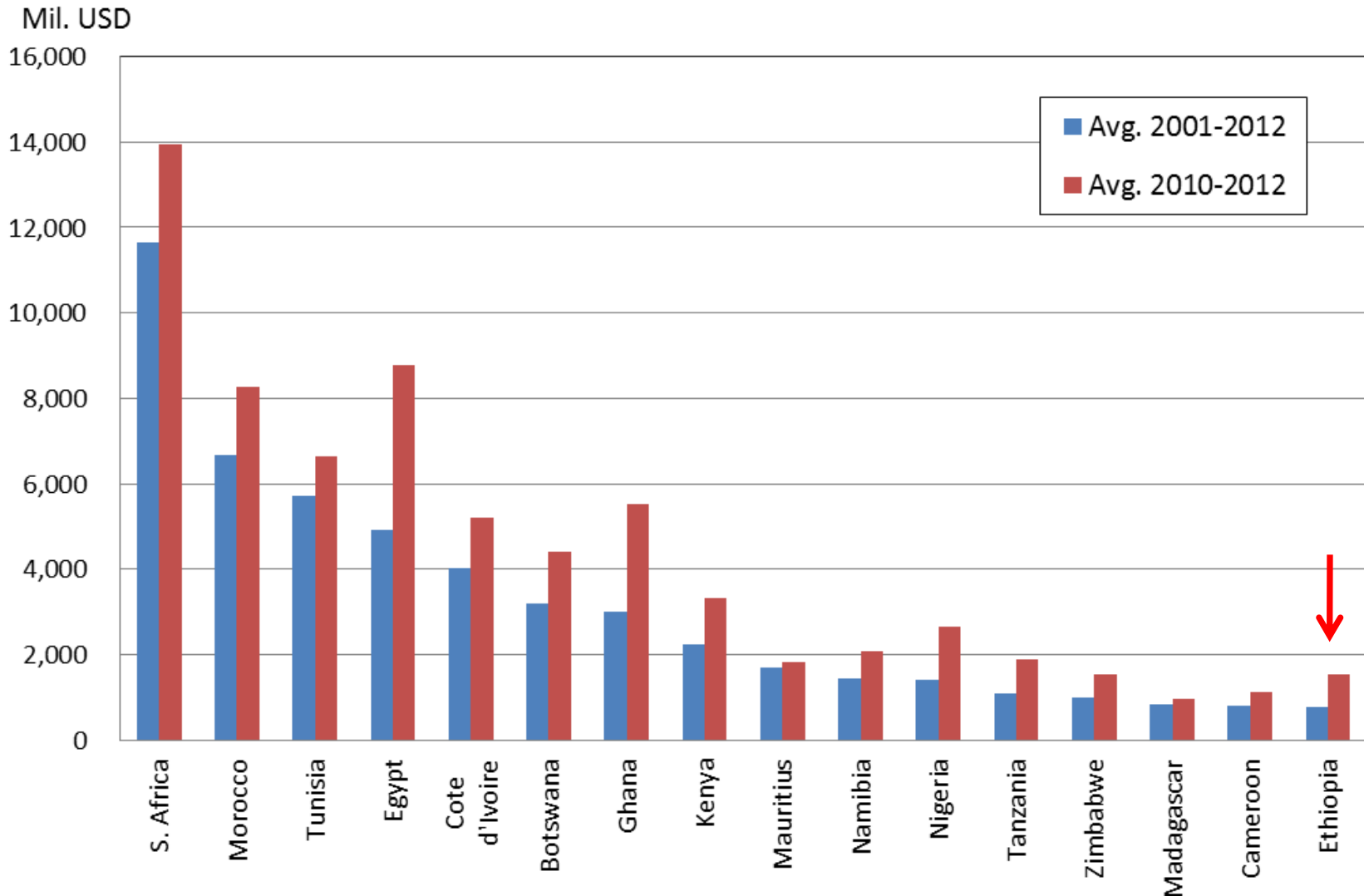
Source: UNCTADstat, accessed Nov. 2013. Light manufacturing is defined using SITC as shown in previous slide

# Asia: Net Light Manufactured Export (LM Export – LM Import)



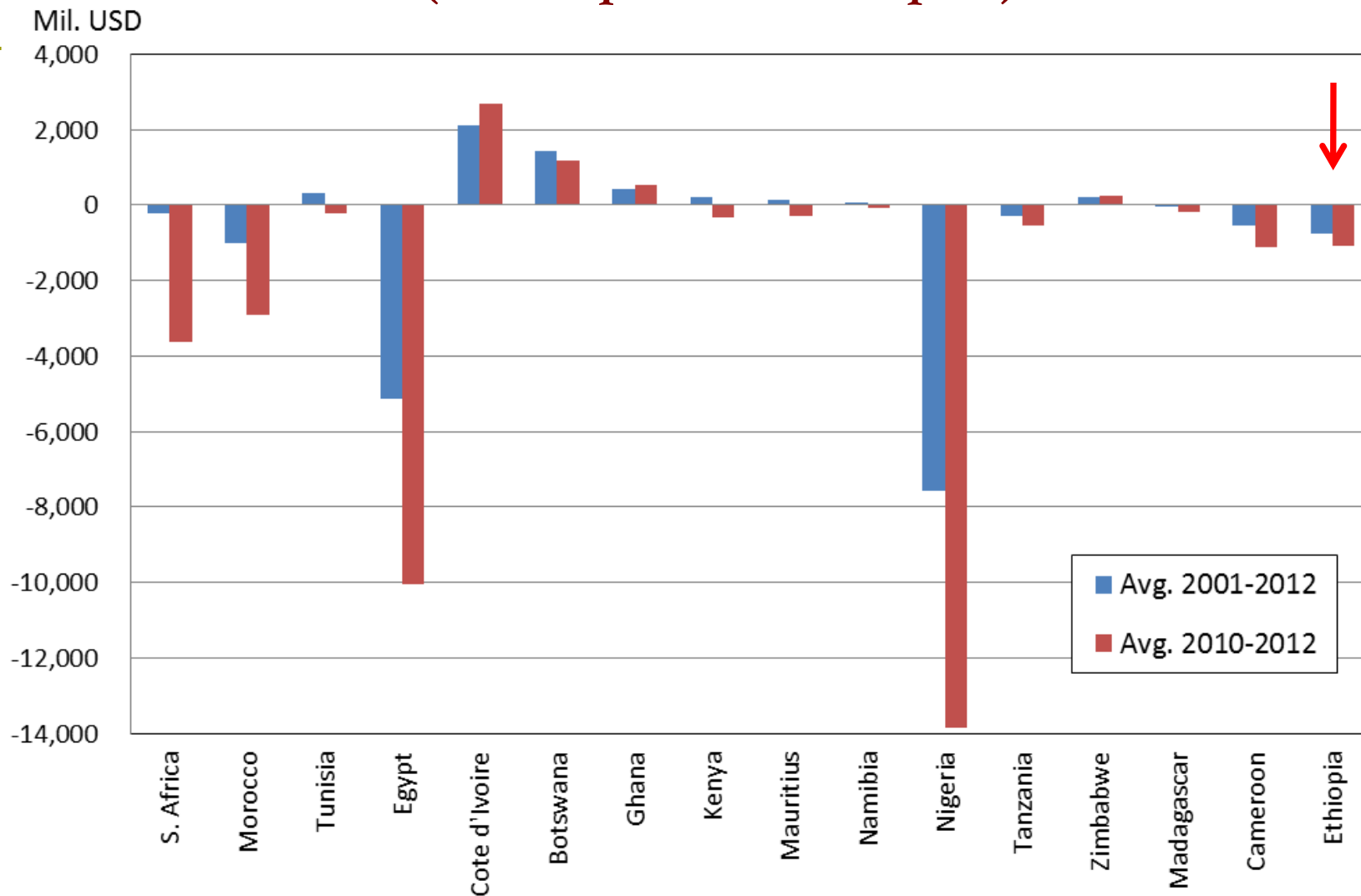
Source: UNCTADstat, accessed Nov. 2013. Light manufacturing is defined using SITC as shown in previous slide

# Africa: Light Manufactured Export



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

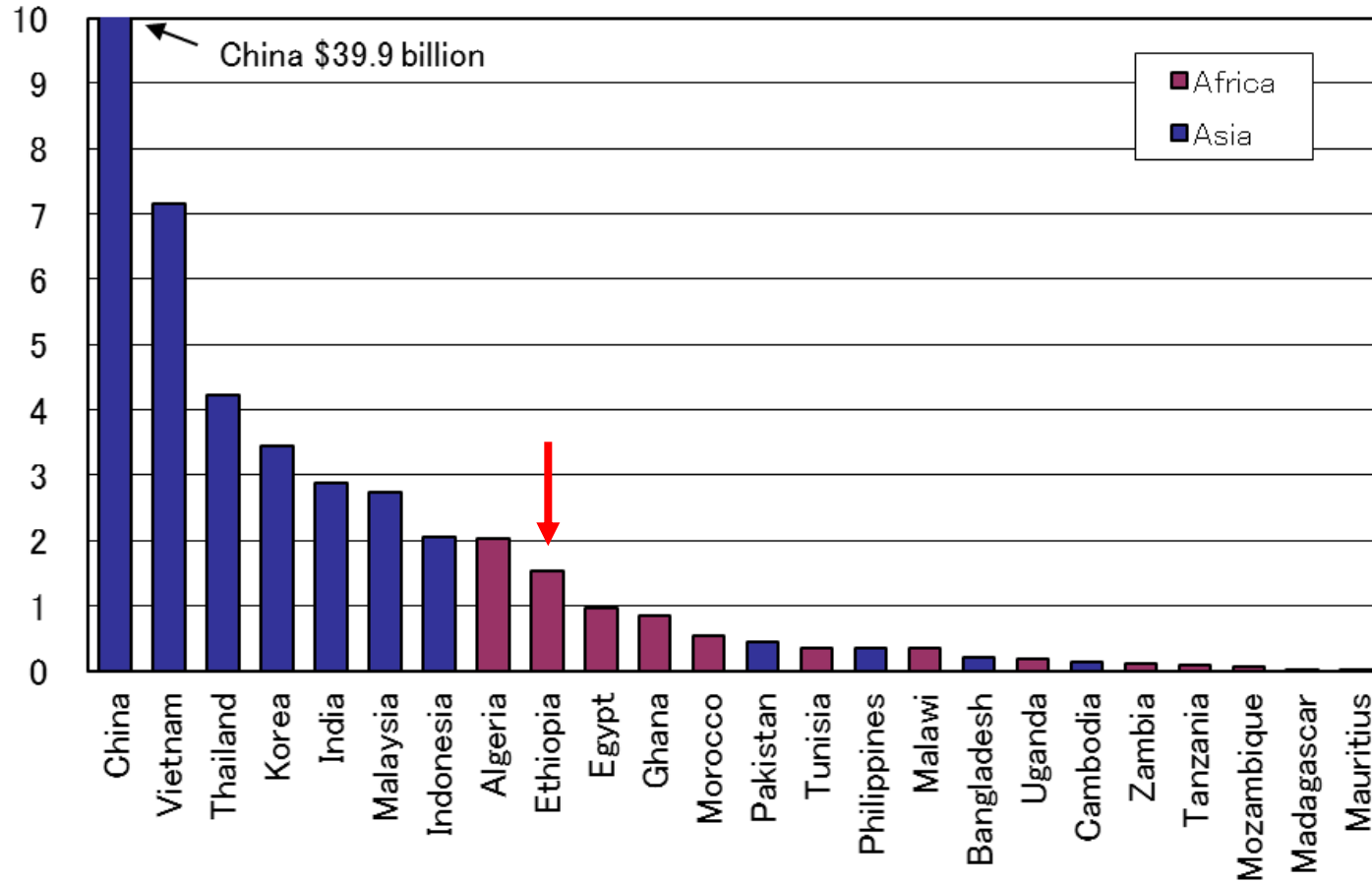
# Africa: Net Light Manufactured Export (LM Export – LM Import)



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

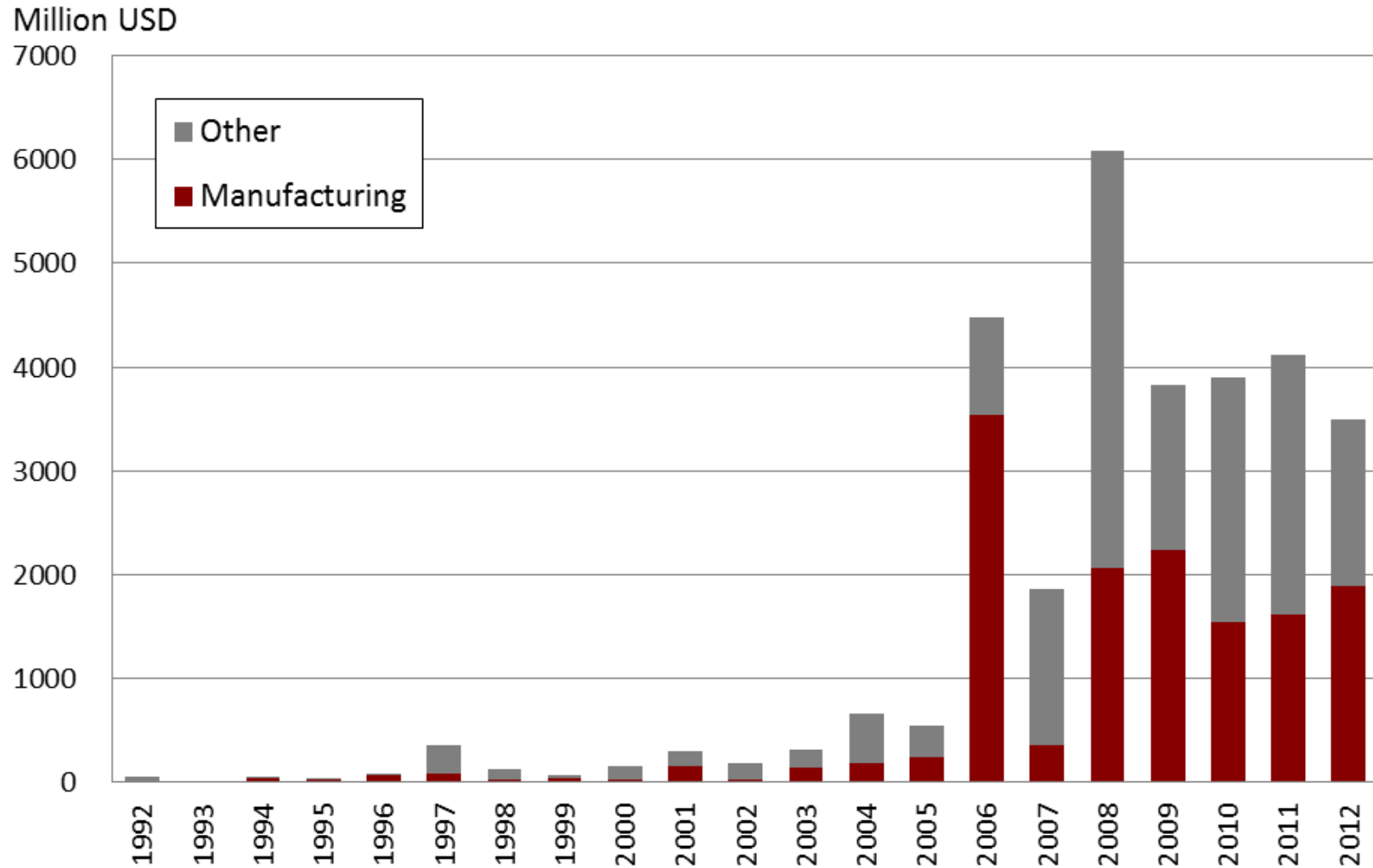


Sources: International Trade Centre (World Bank and UNCTAD) and Ethiopian Investment Agency.

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).



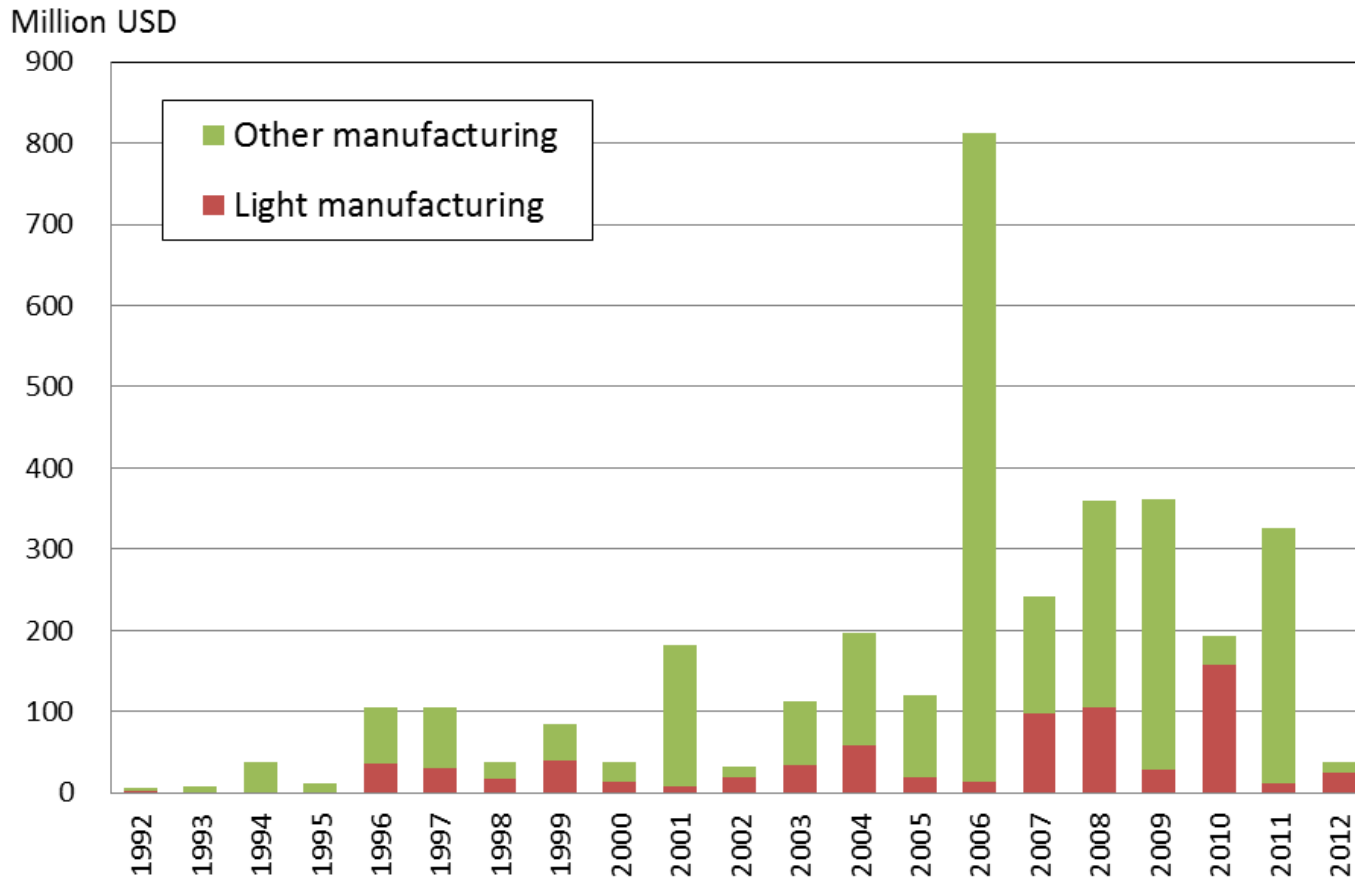
# Ethiopia: FDI Inflow (EIA Data)



Source: Ethiopian Investment Agency.

# Ethiopia: Light Manufacturing FDI Inflow

(Calculated from EIA data on individual projects)



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

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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

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- ❑ 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

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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

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- ❑ 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?)