UNECA E-Training on the Compilation of SUTs

OECD-WTO Trade in Value Added (TiVA) data: introduction

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This course:

- What is Trade in Value Added (TiVA) and why do we discuss it in a course on SUTs
- What insights can TiVA indicators provide about country’s positions and activities in global value chains

Preview to next course:

- How is TiVA exactly constructed and what elements of SUTs are particularly important
- Towards the future: what additional analysis can be undertaken with minor extensions of SUTs
  - E.g. the effects of GVCs for employment, or for CO2 emissions; the role of SMEs and MNEs in your country’s involvement in GVCs
BASICS ON TRADE IN VALUE ADDED AND GLOBAL VALUE CHAINS
Trends in global production and world trade.

- International consumer demand
  - Lower applied tariffs and trade policy incentives
- Development of infrastructure and technological progress
- Export processing zones
  - Outsourcing and offshoring strategies
- Foreign Direct Investment (FDI)
- Emergence of “Trade in tasks”
- Trade in intermediate goods
- Increase of processing trade
- Development of intra-firm trade
...resulting in increasing international fragmentation of production

Explosion of trade in intermediates as firms specialise in stages (tasks) of production

Gross trade flows increasingly embody components (and so value) created elsewhere
From a ‘gross trade’ to a TiVA perspective

• Conventional, ‘gross’ trade statistics do not fully capture this fragmentation, creating misleading perceptions and imperfect policies

• TiVA aims to increase our understanding of the process of globalization by providing insights into the value added created by each country and industry in the production of goods and services that are traded and consumed worldwide
  – How much value added is created by trade – directly and indirectly – and where?
  – What is the (indirect) role of services in international trade?
  – What are the risks (in GVCs) and impacts of policy measures
  – How much is our economy/industry dependent upon foreign demand?

• TiVA’s work horse: Inter-Country Input-Output Table (ICIO), tracing input-output (GVC) relationships across industries AND countries.
SUTs are the main building blocks, in combination with bilateral trade statistics, for constructing Inter-Country Supply and Use tables (and the ICIO), from which TiVA indicators can be derived.

**National Supply and Use tables (SUTs) and/or Input-Output tables (IOTs)**

**Bilateral trade statistics in goods and services**

**Inter-Country Input-Output (ICIO) table**

**TiVA indicators**

**New perspectives for trade analysis and policy**
Gross vs Value Added measures of trade flows

Gross exports of intermediates (50)

Gross exports of final goods/services (150 = 50 + 100)

Value added exports (50)

Value added exports (100)

: Gross trade flows

: Value added trade flows
Schematic presentation of trade in GVCs

1. Economy positions in production chain

2. Examples of production tasks involved

Oil production  Plastic production  Plastic box manufacturing  Plastic box labelling and packaging ("Manu-services")  Final consumption

3. Typical types of products

Primary product  Intermediate good  Intermediate good  Final good
INSIGHTS FROM TIVA ON COUNTRY’S POSITION AND ACTIVITIES IN GLOBAL VALUE CHAINS
Decomposing gross exports into value added components (according to the origin of value added)
Decomposing gross exports into value added components (according to the origin of value added)

This perspective opens up a range of possibilities to develop new indicators that describe the position of countries and industries in GVCs. Such as for example the share of each component in exports, or in total GDP (i.e. value added); Broken down by industry... and by source country (of imported value added) ... and by final destination (of exports)
Decomposing gross exports into value added components (according to the destination of value added)

The example of South Africa

- Domestic VA exported...
  - Sent to consumer economy: 64 billion $ (54% of gross exports)
  - Sent to third economies: 32 billion $ (26.5% of gross exports)
  - Re-imported in the economy: 0 billion $
- Foreign VA: 23 billion $ (19.5% of gross exports)

Imports of foreign inputs:
- 34 million $ (0.03% of gross exp.)

... and re-imported in South Africa...

South Africa gross exports 2011 (Bil. $) 119
South Africa VA exports 2011 (Bil. $) 119

of which:
- Domestic VA
  - Sent to consumer economy: 64 billion $
  - Sent to third economies: 32 billion $
  - Re-imported in the economy: 0
- Foreign VA: 23 billion $
...even if in not all countries the import content of exports has returned to pre-crisis levels, partly also reflecting domestic upgrading.
Protectionism can be counter-productive

*Imports are often embodied in exports*

Intermediate imports embodied in exports as % of total intermediate imports, 2014
Examples of factors influencing import content in exports

<table>
<thead>
<tr>
<th>Factor</th>
<th>Foreign VA in exports</th>
<th>Domestic VA in exports</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size of economy</td>
<td></td>
<td></td>
<td>Industrial capacity to domestically produce the inputs required for its production and exports (domestic value chains)</td>
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<tr>
<td>Large economy (USA, VS = 15%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small economy (Luxembourg, VS = 59%)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Industrial specialization</td>
<td></td>
<td></td>
<td>Position in the chain: beginning Requires less inputs (domestic/foreign) than downstream stages in the chain</td>
</tr>
<tr>
<td>Primary product exporter (Saudi Arabia, VS = 3%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-Tech component producer (Korea, Rep. of, VS = 41%)</td>
<td></td>
<td></td>
<td>Position in the chain: middle Imports basic inputs to produce High-Tech components and final products. Technology/High skills specialization</td>
</tr>
<tr>
<td>Assembler (Viet Nam, VS = 36%)</td>
<td></td>
<td></td>
<td>Position in the chain: end Last link in the chain, cumulating the VA of foreign inputs from previous production stages</td>
</tr>
<tr>
<td>Level of industrialization</td>
<td></td>
<td></td>
<td>Importer of inputs to export (Beginner in GVCs)</td>
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<td>Low (Cambodia, VS = 27%)</td>
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<td></td>
<td></td>
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<tr>
<td>High (Japan, VS = 14%)</td>
<td></td>
<td></td>
<td>Producer and exporter of high VA intermediate / final goods and services</td>
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</tbody>
</table>
Services account for more than half of the value added embodied in exports

Services value added as a % of exports, 2014
The actual contribution of industries to gross exports
The example of South Africa

Domestic and foreign sectoral VA contributions to South Africa exports, 2011
(% share in industry’s total gross exports)

<table>
<thead>
<tr>
<th>Value added origin ↓</th>
<th>Domestic = DVC sourcing</th>
<th>Foreign = GVC sourcing</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary products</td>
<td>Manufactures</td>
<td>Services</td>
</tr>
<tr>
<td>Total, of which:</td>
<td>24.4</td>
<td>18.4</td>
<td>37.8</td>
</tr>
<tr>
<td>Primary products</td>
<td>61.1</td>
<td>5.4</td>
<td>21.1</td>
</tr>
<tr>
<td>Manufactures</td>
<td>11.8</td>
<td>32.2</td>
<td>27.7</td>
</tr>
<tr>
<td>Services</td>
<td>1.4</td>
<td>4.9</td>
<td>84.9</td>
</tr>
</tbody>
</table>

Source: OECD-WTO TiVA database
Smaller surplus with US, smaller deficits with Asian markets

Gross and Value Added Trade Balances - 2014

- USA
- MEX
- IND
- GBR
- CAN
- JPN
- FRA
- MYS
- SGP
- AUS
- DEU
- TWN
- KOR

Gross Trade Balance
Value Added Trade Balance
All you wanted to know about TiVA...

Trade in value added statistics:

✔️ Are estimates!
  - Not based on actual measures of the VA exchanged across countries
  - Rely on complex compilation (crossing of various statistical systems, compilation assumptions like “Homogeneity of production technology”)

✔️ Do not replace traditional trade statistics but rather complement them by providing another angle for trade analysis
  - Traditional statistics provide actual and detailed information (product level) on trade flows, BUT present biases (country of origin difficult to determine, multiple counting of trade in intermediates)
  - Traditional statistics are used for the compilation of ICIO tables underlying TiVA

✔️ Constitute a macroeconomic approach with aggregated industries
  => Not for decision-making or negotiation at product level

✔️ Are useful for trade analysts and policy makers to:
  - Understand current trade patterns, especially exchanges taking place within production networks
  - Outline the VA origins in exports and the actual contributions of economies/industries to international trade
  - Provide key messages for trade policy-making, e.g.:
    - Level of interconnection between economies and industries within GVCs
    - Import to export
    - Role of services in production and trade, ...