Development of Methods to measure Global Value Chains in Business Surveys

WPGI
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Contents

• Background
  – Survey on International Sourcing 2007
  – Micro Data Linking Project (on going)

• Measuring Global Value Chains
  – Justification
  – Measurement approaches
  – Definitions
  – Survey design
Background

• In 2006 mainly anecdotal evidence
• Few statistical sources available
• Evidence for policy making missing
Policy issues addressed

- How many jobs are moved across borders? Which type of jobs and in which sectors?
- Who are the receiving countries?
- What are the overall employment impacts – in terms of job losses or gains?
- What is the impact of international sourcing on the competitiveness of European firms?
- Is there a risk of “hollowing out“ skill based activities?
Module 1: General information (for all enterprises)

Module 2: Sourcing activity of the enterprise (for all enterprises)

Module 3: Sourcing activity of the enterprise carried out inter-nationally during 2001-2006 (for enterprises carrying out international sourcing in 2001-2006)

Module 4: Plans for international sourcing 2007-2009 (for enterprises with no prior international sourcing activity)

Module 5: Future impact on employment (for enterprises with international sourcing during 2001-2006 and/or plans for international sourcing during 2007-2009)

Module 6: Barriers on international sourcing (for all enterprises)
Impact of IS on employment – assessment.
Share reporting substantial impact

-40  -30  -20  -10  0  10  20
CZ* DE DK FI IE IT NL* NO PT* SE* SI UK

-40  -30  -20  -10  0  10  20
CZ* DE DK FI IE IT NL* NO PT* SE* SI UK

-40  -30  -20  -10  0  10  20
CZ* DE DK FI IE IT NL* NO PT* SE* SI UK

Creating new high skill jobs domestically
Creating other types of jobs domestically
Moving high skill jobs abroad
Moving other types of jobs abroad
Net job effect of international sourcing of minor scale in Denmark

- Net job effect
- Lost jobs due to international sourcing
- Jobs created due to international sourcing
- Jobs created in Denmark due to received sourcing tasks from abroad

Mainly from foreign enterprises
Enterprises sourcing R&D functions and engineering functions; share of enterprises sourcing internationally (%)
Destinations for sourcing R&D functions; share of enterprises sourcing these functions (%)
Opening the black box of the enterprise by introducing 8 generic Business Functions

Core business function:
Production of final goods or services intended for the market/for third parties carried out by the enterprise and yielding income.

Support business function:
Support business functions (ancillary activities) are carried out in order to permit or facilitate production of goods or services intended for the market/for third parties by the enterprise.

- Distribution and logistics
- Marketing, sales and after sales services
- ICT services
- Administrative and management functions
- Engineering and related technical services
- Research & Development
- Other support functions
International sourcing by business partner. Share of enterprises with international sourcing

<table>
<thead>
<tr>
<th>Country</th>
<th>Within enterprise group (insourcing)</th>
<th>Other foreign enterprises (outsourcing)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ireland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portugal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Czech Rep.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Within enterprise group (insourcing) and Other foreign enterprises (outsourcing) as a percentage.
Micro Data Linking project

• Participants: Czech Republic, Denmark, Finland, Ireland, Italy, the Netherlands, Norway, Portugal, Slovenia and Romania
• Developing methodology for micro data linking
• Utilising existing statistical registers: International Sourcing survey, SBS and Foreign Trade
• Focusing on measuring impacts on employment and trade patterns
• Special focus on sourcing to China and India and sourcing of knowledge intensive functions (research and development and engineering)
**Data assembly using unique enterprise ID number (performed by NSIs)**

**International Sourcing Survey (IS)**

**Business Register**

**Structural Business Statistics (SBS)**

**Foreign Trade (FT)**

Data Assembly (Chosen Variables from IS, SBS and FT for the period of 2000-2008)

Micro Data, Population from the IS survey and Control group. IS and SBS variables

**SAS Code Development, Tabulation (supplied by the methodological support group)**

Code Execution, Tabulation, National Analysis (performed by the NSIs)

Cross Country Analysis (performed by the methodological support group)

**Report to EUROSTAT (NSIs)**

Output Tables with National Data for all the MS (compiled by the methodological support group)
Micro data linking: IS, SBS and FT
4 main research questions

• What is the impact of international sourcing on domestic employment?

• What can we say about the impact on personnel costs per employee domestically?

• Can we see an impact on value added creation per employee?

• What is the influence of international sourcing on foreign trade patterns?
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Why expand the scope to GVCs?

• Demand from policy makers:
  EU 2020 strategy:
  The Commission will draw up a framework for a modern industrial policy. The framework will address all elements of the increasingly international value chain from access to raw materials to after-sales service.

• Real economy justification:
  Increased fragmentation of the production chain
  Increased digitalization of tasks, especially services
  Growing global trade in intermediates
  Rising trade between affiliates
What is a global Value Chain?

- Global Value Chains encompass the full range of activities that are required to bring a good or service from conception through the different phases of production – provision of raw materials; the input of various components, subassemblies and producer services; the assembly of finished goods – to deliver to final consumers, as well as disposal after use.

- In the context of globalization, the activities that constitute a value chain are generally carried out in interfirm networks on a global scale.

(Cattaneo, Gereffi and Staritz (2010))
Measurement Approaches

- Micro approach (products)
- Macro approach (foreign trade, i/o tables)
- Meso approach (enterprise/activity approach)
Measuring GVCs: The meso approach

• The project is not going to measure individual products or firms as case studies or utilize macro economic statistics as indicators but to survey a representative sample of enterprises to produce enterprise statistics reflecting the importance of GVCs.

• The proposed method will be to describe a phenomena, which is difficult to observe (GVCs) by observable variables (the questionnaire contents)

• The impacts of GVCs will be analysed by micro data linking utilising existing statistical registers
Issues to be addressed

• (1) Revising the scope
  – Not only measure movements but also structures
• (2) Developing a standardised classification of business functions
  – Utilise existing methodological experiences to develop and propose a classification
• (3) Revising the questionnaire
  – How to measure the volume of business functions?
• (4) Furthering micro data linking
  – Build upon existing experiences and include new registers, e.g. FATS, R&D
Measuring flows and structural reconfiguration

- Sourcing inherently involves change. The literature suggests that this is but one flow that may affect the structure of the GVC.
- Moreover, structural reconfigurations of GVCs may not involve flows or movements of existing activities across organisational and geographical boundaries.
- Experiences from the previous IS survey with questions on international expansion other than through international sourcing are relevant to this.
- OFATS proves the feasibility of collecting quantitative information about activities in foreign affiliates.
(1) Revision of the scope of the survey

- International Sourcing (outwards)
- International Sourcing (inwards)
- Sourcing back
- Expansions/contractions abroad
- Relocations abroad (?)
Five GVC Governance Types

<table>
<thead>
<tr>
<th>Market</th>
<th>Modular</th>
<th>Relational</th>
<th>Captive</th>
<th>Hierarchy</th>
</tr>
</thead>
<tbody>
<tr>
<td>End Use</td>
<td>Customers</td>
<td>Lead Firm</td>
<td>Lead Firm</td>
<td>Integrated Firm</td>
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<tr>
<td></td>
<td></td>
<td>Full-package</td>
<td>Relational</td>
<td>Captive Suppliers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Supplier</td>
<td>Supplier</td>
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<td>Component and</td>
<td>Component and</td>
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<td></td>
<td>Material</td>
<td>Material</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Suppliers</td>
<td>Suppliers</td>
<td></td>
</tr>
</tbody>
</table>

Value Chain

- Low
- High

Degree of Explicit Coordination

Degree of Power Asymmetry

Statistics Denmark
How to implement the types of relation in the survey? Hierarchical structure

- **Intra-group relations:**
  - Global group head
    (Identified from OFATS/EGR)
  - Local group head
    (Identified from OFATS/IFATS/EGR)
  - Foreign owned affiliate
    (Identified from IFATS/EGR)
How to implement the types of relation in the survey? Extra-group relations

<table>
<thead>
<tr>
<th>Buyer role</th>
<th>Length of relation</th>
<th>Short-term</th>
<th>Long-term</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(contractual period of less than one year)</td>
<td>(contractual period of one year or more)</td>
</tr>
<tr>
<td>Product developer/specifier</td>
<td></td>
<td>Modular</td>
<td>Relational (or Captive when supplier capabilities are low)</td>
</tr>
<tr>
<td>(the buyer is involved in the</td>
<td></td>
<td>Short-term relation where the buyer develops/specifies the product/service</td>
<td>Long-term relation where the buyer develops/specifies the product/service</td>
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<tr>
<td>design/development and/or</td>
<td></td>
<td>(short-term relationship with explicit coordination for a specialised input)</td>
<td>(long-term relationship with explicit coordination for a specialised input)</td>
</tr>
<tr>
<td>specification of the good/service</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product taker</td>
<td></td>
<td>Market (spot)</td>
<td>Market (repeat)</td>
</tr>
<tr>
<td>(the buyer is not involved in the</td>
<td></td>
<td>Short-term relation where the buyer does not develop/specify the product/service.</td>
<td>Long-term relation where the buyer does not develop/specify the product/service</td>
</tr>
<tr>
<td>development and/or specification</td>
<td></td>
<td>(short-term arms-length relationship for a standardised input)</td>
<td>(long-term arms-length relationship for a standardised input)</td>
</tr>
<tr>
<td>of the good/service)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Developing an enlarged classification of business functions

- **Procurement**: Procurement services
- **Engineering and related technical services**: Engineering and related technical consultancy, technical testing, analysis and certification.
- **Distribution and logistics**: Consists of transportation activities, warehousing and order processing.
- **Marketing and sales services**: Market research, advertising, direct marketing services (telemarketing), sales services, exhibitions, fairs and other marketing or sales services.
- **After sales services**: After sales services including call-centre services, help-desks and other customer supports services.
- **ICT services**: IT-services and telecommunication. IT services consist of hardware and software consultancy, customised software data processing and database services, maintenance and repair, web-hosting, other computer related and information services. Packaged software and hardware excluded.
- **Finance and accounting**: Accounting, book-keeping, auditing and corporate financial and insurance services
- **Other administrative and management functions**: Legal services, business management and consultancy, HR management (e.g. training and education, staff recruitment, provision of temporary personnel, payroll management, health and medical services).
- **Research & Development**: Research and experimention and product development
- **Facility Management**: Cleaning, maintenance and canteen services
Proposed Modules for Testing

1. GENERAL INFORMATION
2. THE VALUE CHAIN (END OF 2010)
   - BUSINESS FUNCTIONS ABROAD: FOREIGN AFFILIATES
   - BUSINESS FUNCTIONS ABROAD: EXTERNAL SUPPLIERS
3. INTERNATIONAL SOURCING 2007-2011
   - INTERNATIONAL SOURCING OF BUSINESS FUNCTIONS
   - INTERNATIONAL BACKSOURCING OF BUSINESS FUNCTIONS
   - TASKS RECEIVED DUE TO THE INTERNATIONAL SOURCING
   - BARRIERS TO INTERNATIONAL SOURCING
   - LOCATION OF SUPPORT FUNCTIONS
4. OTHER CHANGES IN VALUE CHAIN ACTIVITIES 2007-2011
5. FUTURE STRUCTURE OF VALUE CHAIN 2012-2015 (OPTIONAL)
   - FUTURE PLANS FOR FOREIGN AFFILIATES
   - FUTURE PLANS FOR INTERNATIONAL SOURCING
6. COMMENTS AND CONTACT DETAILS (OPTIONAL)
Example of question on GVC (1)

<table>
<thead>
<tr>
<th>Core business functions</th>
<th>EU-15</th>
<th>EU-12</th>
<th>Russia</th>
<th>Other European countries</th>
<th>China</th>
<th>India</th>
<th>Other Asian countries</th>
<th>USA and Canada</th>
<th>Brazil</th>
<th>Other South and Central America</th>
<th>Africa</th>
<th>Not applicable/Do not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production of goods and services for the market</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Support business functions</th>
<th>EU-15</th>
<th>EU-12</th>
<th>Russia</th>
<th>Other European countries</th>
<th>China</th>
<th>India</th>
<th>Other Asian countries</th>
<th>USA and Canada</th>
<th>Brazil</th>
<th>Other South and Central America</th>
<th>Africa</th>
<th>Not applicable/Do not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement</td>
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<tr>
<td>Distribution and logistics</td>
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<tr>
<td>Marketing and sales services</td>
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<td>After sales services</td>
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<td>ICT services</td>
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<tr>
<td>Finance and accounting</td>
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<tr>
<td>Other administrative and management functions</td>
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<tr>
<td>Engineering and related technical services</td>
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<td>R &amp; D</td>
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<tr>
<td>Facility management</td>
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<tr>
<td>Other types of functions, pls. specify:</td>
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</tbody>
</table>
## Example of question on GVC (2)

<table>
<thead>
<tr>
<th>Core business functions</th>
<th>Long-term contract supplier</th>
<th>Yearly contract-based supplier</th>
<th>Short-term shifting suppliers</th>
<th>No external suppliers abroad</th>
<th>Not applicable/do not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production of goods and services for the market</td>
<td>[]</td>
<td>[]</td>
<td>[]</td>
<td>[]</td>
<td>[]</td>
</tr>
</tbody>
</table>

### Support business functions

| Procurement                                                  | []                         | []                            | []                            | []                          | []                          |
| Distribution and logistics                                    | []                         | []                            | []                            | []                          | []                          |
| Marketing and sales services                                  | []                         | []                            | []                            | []                          | []                          |
| After sales services                                         | []                         | []                            | []                            | []                          | []                          |
| ICT services                                                  | []                         | []                            | []                            | []                          | []                          |
| Finance and accounting                                       | []                         | []                            | []                            | []                          | []                          |
| Other administrative and management functions                 | []                         | []                            | []                            | []                          | []                          |
| Engineering and related technical services                    | []                         | []                            | []                            | []                          | []                          |
| R & D                                                        | []                         | []                            | []                            | []                          | []                          |
| Facility management                                          | []                         | []                            | []                            | []                          | []                          |
| Other types of functions, pls. specify:                      | []                         | []                            | []                            | []                          | []                          |
The Road ahead

• Field testing of questionnaire (ongoing in countries)
• Presentation of testing results
• Revision of questionnaire July 2011
• Fine tuning of questionnaire Q.3 2011
• Launching of new survey Q.4 2011
• Full scale survey 2012 (first half)
• Dissemination of results 2013
• Micro data linking 2012 (second half 2012)
• Dissemination of results 2013
Thank you for your attention!

If any questions, you are most welcome to contact me: pbn@dst.dk