



Research-based Factory-Less Enterprises

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Background

- Globalization has stimulated enterprises to outsource manufacturing and physical transformation to abroad
- Global production chain of a multinational enterprise is controlled by the head office in domestic country
 - The head office has ownership of IPPs
 - R&D and product design are located close to the head office

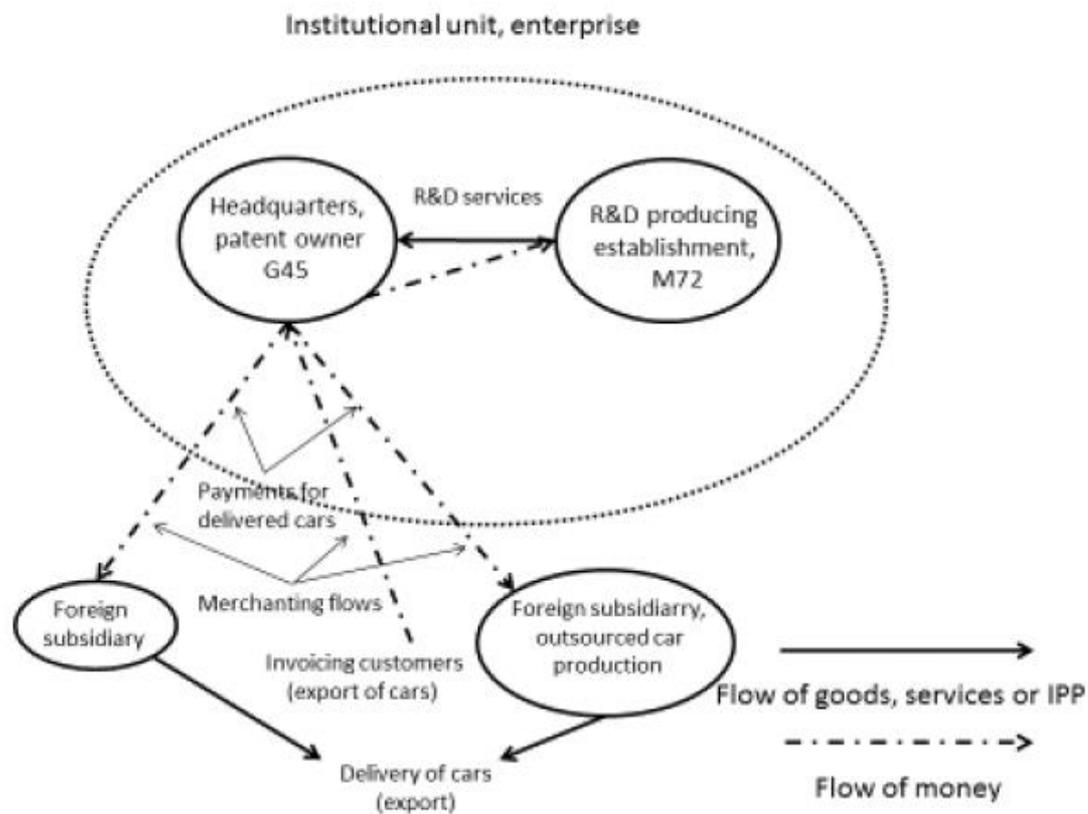
Factoryless production and research-based producers

- These enterprises have no manufacturing in Sweden, so they are factoryless from the perspective of national accounts
 - They receive merchanting income after the goods have been produced and sold abroad
 - The goods have a content of high technology (IPP) and services
 - IPP and services have a high share of value added of the product
 - Value added is mainly generated by non-physical inputs like R&D, IPP, IT-services (software) and digital knowledge
 - What would be the main activity, industry-class, product and output in national accounts of domestic country?

Research-based producer – a special case of FGP

- A class of newly emerging companies
- Income is received from products that are like goods but have a large content of services
 - The income comes from sales of products while the main activity is in services
 - The companies have supply chain management, R&D-units and in addition software development and production testing in Sweden
 - Companies can later sell services directly to the customers
 - The output is a composite of good and service, while the value added is service-dominated
- The main question: are the products goods or services?

Graph 2: The factory-less goods producer



Source: Wolf M (2015) *Factory-less goods producers..*

Remarks and questions

Why cannot research-based factoryless enterprises be treated like FGPs in the UNECE GMGP-book*? What kind of differences they have?

- Input structure
- Ownership of materials
- Services associate with goods in the product
- Merchanting income (invoicing)
- Foreign subsidiary as a manufacturer in a multinational enterprise
- Activity, industry-class, product type, output

* GMGP (UNECE) recommended to classify FGPs in trade, and recognise the activity merchanting and the output trading services

Digitalization and Internet of things

- Goods associate with a large content of digital services
- The main part of value added in these products comes from the service content
 - Products are still treated as goods in national accounts
- Income comes from sellings goods with a high service content
- Digitalization and Internet of things are creating products that have inputs mainly from IPP and R&D, software, services, digital knowledge
 - Factoryless enterprise with non-physical inputs
- A couple of cases about the experience of Sweden

Industry and product classifications

Problem in the current situation: Principals of global production arrangements are classified in a variety of industries such as manufacturing, information technology, R&D or trade.

- Current classifications are based on ownership of materials and these domestic enterprises don't have physical inputs
 - Applying present classifications is difficult for research-based enterprises
- Are factoryless enterprises treated in a group or separately in national accounts?
- Interpretation and analyse of national accounts is confusing

About determinants of classifications:

- Value added: we know that service content is dominating
- Owner of input materials: can blue-prints and IT-tools be seen as input materials (that are owned by the head office)

Industry and product classifications

Discussion of the product division

- The current state is outdated which needs to be replaced by a division in three categories of output as tangible goods, intangible goods and services (Hill 2013)
- Understanding of IPPs and their positions in the classifications (Wolf 2015)
- Information goods industry in manufacturing (Broussolle 2015)

The paper sees that creating a sub-section to production of goods is an option

- Detailed data input is demanded from enterprises regarding the digital content of their products

Conclusion

- Development of information technology and digitalization is creating products with a large content of IPP such as R&D
 - IPP contributes substantially in value added
 - Industry classification is problematic when larger content of value added in goods-producing sector is being generated from service production
- The physical input of material goods is not enough to define industry classification
- To develop the classifications and the definitions used in national accounts
 - Some options
 - Three product categories
 - To introduce a new goods-producing industry for FGPs

Thanks for your attention!