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**Manufacturing services**

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## 1 Introduction

Manufacturing services and factoryless goods providers (FGPs) are two sides of an increasing global phenomenon. The Voorburg group has already at some level discussed the FGPs, so it is important to take a look at the other side as well.

This paper first defines what is meant by manufacturing services. It then provides some case studies where it is shown that recording of manufacturing services are not simple, based on current manuals and recommendations. The possibilities of double counting or not counting at all are rather high. In the future the best way to compile truly coherent international statistics is to compare data with other countries.

Manufacturing services are services that are classified within manufacturing, i.e. section C in NACE rev.2 in Europe. This means that manufacturing services are measured within the PPI system, and is hence not a part of SPPI. The difficulties with measuring prices for manufacturing services are similar to the ones encountered in SPPI. Therefore the development of manufacturing services and continuous work with manufacturing services in Sweden and Finland have been carried out by people working with SPPI or in close relation with SPPI staff.

## 2 SNA guidelines change

The 2008 SNA has significant changes compared to the 1993 SNA concerning manufacturing services. The principle of ownership is the new leading guideline when it comes to goods sent abroad for processing. In the 1993 SNA the physical movement of goods across borders was recorded as a change in ownership in national accounts.

In practice, based on the 1993 SNA the manufacturing country records the total value of the product in its exports. In the 2008 SNA the exporting country only records the value of the manufacturing service in its exports.

This new guideline creates coherence challenges to international trade statistics (which are still based on the physical movements of goods) and structural business surveys (which will be based on the ownership principle). UNECE/Eurostat/OECD Expert Group studied, among other things, the consequences of the ownership principle. The Group published a draft manual 'The Impact of Globalisation on National Accounts'<sup>1</sup>. Chapter 5 of the manual describes the challenges the new ownership principle brings to statistical offices.

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<sup>1</sup> The manual draft is published here: <http://www.unece.org/stats/groups/wggna.e.htm>

In addition, Eurostat is planning a Task Force concerning goods sent abroad for processing. The Task Force will be started in September 2011 and the last meeting is scheduled in May 2013.

## 3 Classification of manufacturing service providers

### 3.1 Differences in classifications

Different classifications used in different parts of the world defines manufacturing service providers differently. Which definition is used affects the way of approaching the problem. Part 3.2 and 3.3 below outline the differences between the definitions used in North America and Europe.

### 3.2 NAICS (North American Industry Classification System)<sup>2</sup>

The manufacturing service provider (MSP) provides contract manufacturing services that utilize inputs such as capital, labour and energy to transform material inputs according to the contract specifications. The growth of MSPs (foreign and domestic) is the result of traditional integrated manufacturers substituting away from direct expenditures on capital and labour (i.e. factories, equipment, and production workers) to purchases of capital and labour services. MSPs provide these capital and labour services. Characteristics of manufacturing service providers include:

- Does not own or control the intellectual property or design of the final product manufactured;
- **May or may not own input materials;**
- Owns production facilities;
- Performs transformation activities;
- Does not own the manufactured products contracted to produce; and
- Does not sell the final product.

The manufacturing service provider can provide information on the value of the contract work, the types of transformation activities it performed, as well as the value of the labour and the plant and equipment utilized in the transformation activities. However, it cannot report the market value of the final product. NAICS classifies manufacturing service providers to the manufacturing sector.

### 3.3 NACE

The NACE<sup>3</sup> classification used in Europe restricts manufacturing services to the manufacturing service providers not owning themselves the raw materials.

<sup>2</sup> [http://www.census.gov/eos/www/naics/fr2010/ECPC\\_Recommendation\\_for\\_Classification\\_of\\_Outourcing.pdf](http://www.census.gov/eos/www/naics/fr2010/ECPC_Recommendation_for_Classification_of_Outourcing.pdf)

<sup>3</sup> NACE is the acronym for “Nomenclature statistique des activités économiques dans la Communauté européenne”. NACE is the “statistical classification of economic activities in the European Community”.

## 4 How to find manufacturing services

### 4.1 Questionnaires

#### **Special solutions in Sweden and Finland**

Statistics Sweden has developed special CN8-digit numbers for manufacturing services, used in ProdCom, e.g. 99416231. The first two digits (always 99) denote that it is a manufacturing service. The third digit defines what kind of service it is; 3 is contract processing while 4 is assembly and installation e.g. The last five digits are equal to the 5-digit SPIN codes, a Swedish version of CPA.

Currently the only survey that specifically asks for production values for manufacturing services is ProdCom and it is therefore the only existing sample frame.

The Finnish ProdCom survey has also developed a special coding for manufacturing services. In the basic 8-digit ProdCom classification, there are some 10-digit classes added, that ends with 90, which means that these are manufacturing services.

Since ProdCom is the only survey that records manufacturing services, such transactions are only measured for sales inside each country. No prices for exports or imports of manufacturing services are currently being measured in either Sweden or Finland.

### 4.2 Custom's data

A part of export and import of manufacturing services can be found based on custom's data in the EU. The regulation controlling intra-EU trade includes a special code for international manufacturing services. When a good crosses the border, it is possible to announce that the good is entering, or leaving, the country just to be transformed.

#### **Intrastat: The nature of the transaction**

Instructions: 9.1 Processing under contract

Processing of goods under contract refers to cases where goods are delivered to another EU country for processing or continued processing. The goods, usually raw material or semi-finished products, are delivered for processing free of charge. When returning the processed goods the value of the extra material used for manufacturing and other manufacturing expenses are charged.

The full value of goods delivered for processing under contract or returned after processing under contract is always declared in the statistical declaration. Concerning goods supplied free of charge, the current value is reported. The invoice value of a finished product is its value plus the additional expenses according to the invoice. The commodity code often changes as a result of processing under contract.

For arrivals, the Member State where the processing has taken place is declared as the country of origin of goods processed under contract.

In the compilation of statistics, processing under contract is distinguished from regular goods by a transaction code. Goods delivered for processing under contract are declared using the code 41, if the goods are returned or are assumed to be returned to the Member State where they were originally dispatched. The code 42 is used, if the goods are not returned or are not assumed to be returned to the Member State of dispatch. The goods that are returned after processing are declared using the code 51, if they are returned to the Member State of dispatch. The code 52 is used, if the goods are not returned to the Member State of dispatch. The same codes can be used both for arrivals and dispatches; the form is chosen according to the direction of the delivery.

4. Operations with a view to processing under contract (no transfer of ownership to the processor)

41. Goods expected to return to the initial Member State of dispatch

42. Goods not expected to return to the initial Member State of dispatch

5. Operations following processing under contract (no transfer of ownership to the processor)

51. Goods returning to the initial Member State of dispatch

52. Goods not returning to the initial Member State of dispatch

Processing covers operations (transformation, construction, assembling, enhancement, renovation...) with the objective of producing a new or improved item. This does not necessarily involve a change in the product classification. Processing activities on a processor's own account are not covered by this item and should be registered under item 1.

## *5 Examples of manufacturing services*

### *5.1 Case Finland: Copper transformation services for a Swedish enterprise*

A Finnish company A sells copper refining services to its Sweden-based parent company B. Copper ore comes from Sweden to Finland only to be transformed. The Finnish company A does not own the raw material or the final product; the ownership is in Sweden during the whole process. The Finnish company A gets a manufacturing fee for the service. In this case, the finished product is returned to Sweden. This is basic goods for processing case.

In the foreign trade statistics, raw material coming to Finland is marked 'for processing' and the end product is marked, correspondingly, 'returned after processing'.

### 5.1.1 Current practice

In price statistics the current method is to try to price the copper material both in imports and exports. The plan is that in the future, only manufacturing fee is collected.

Assuming that the manufacturing fee is 50 and the value of raw material is 30, the following figures are recorded in the two countries.

#### 5.1.1.1 Finland's statistics

In the foreign trade statistics, all crossings of the border are recorded:

SNA1993

Import of copper ore	30
Export of transformed copper	80

However, in the output/turnover statistics only manufacturing fee (50) is recorded. ProdCom statistics records the value of the raw material plus the manufacturing fee (30+50), same as customs. National accounts use customs data and have to adapt all other figures to that.

#### 5.1.1.2 Sweden's statistics

In Sweden no output/turnover is recorded. In the foreign trade statistics, exports and imports of copper are recorded.

SNA1993

Export of copper ore	30
Import of transformed copper	80

### 5.1.2 Future practice?

The future practice in this case, according to SNA2008, would be to record only the price of the manufacturing service in the foreign trade statistics. The tables below show what figures would be recorded in the two countries.

#### 5.1.2.1 Finland's statistics

SNA2008

Import of copper ore	0
Export of transformed copper	0
Export of copper transformation services	50

### 5.1.2.2 Sweden's statistics

SNA2008

Export of copper ore	0
Import of transformed copper	0
Import of copper transformation services	50

## 6 Price measurement of manufacturing services

### 6.1 Manufacturing services in Swedish PPI

Manufacturing services stands for about 8.5% of the total weight on the domestic market. Sweden does not measure manufacturing services on the export or import market. Time based methods, i.e. mostly hourly charge out rates, are used for about 50% of the price measurements. To try to compensate for the problems of hourly charge out rates a larger sample than required for manufacturing services is used. A large part of the manufacturing services are carried out in NACE/CPA group 25.6, treatment and coating of metals. Manufacturing services are also significant in divisions 10, 16, 18, 24, 29 and 30.

The biggest problem with measuring prices for manufacturing services is finding comparable and repeated services. A lot of manufacturing services are one-off transactions that are only sold once, but in total account for very large values.

### 6.2 Manufacturing services in the Finnish PPI

In Finland, manufacturing services are covered in PPI, not in SPPI. The main pricing method used is hourly charge out rates. Otherwise price per item is used, where price is defined as a price for a single assembly/transformation/modification of a good.

## 7 Summary

Measuring prices for manufacturing services is difficult in itself. Finding proper sample frames is also a problem that most countries encounter. The changes in SNA2008 regarding manufacturing services, if introduced, will affect not only price statistics but other surveys as well, particularly foreign trade statistics. If manufacturing services were to be recorded properly in the foreign trade statistics this would mean better sample frames for price statistics. However, the idea of not recording the value of the good, but the value added of the service provided, imposes big challenges for customs and foreign trade statistics. If this will be implemented in the near future remains to be seen.