Session Number: Parallel Session 4C
Time: Tuesday, August 24, AM

Paper Prepared for the 31st General Conference of
The International Association for Research in Income and Wealth

St. Gallen, Switzerland, August 22-28, 2010

Global manufacturing in Sweden 1995-2008

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1 Global manufacturing

The following definition of Global manufacturing comes from the final report of the Eurostat Task Force on the recording of certain activities of multinationals in national accounts

The term *global manufacturing*[1] refers to production activities within multinational groups in which the different parts of the production process take place in different countries. Output is also generally sold in more than one country. Typically, R&D and design and marketing activities are carried out in one country, while physical production take place in other countries. In some cases, physical production is organised as goods sent for processing abroad and returned to the same country after processing, without change of ownership. In other cases the affiliate acting as physical producer acquires the ownership of the inputs (which may in turn be produced in the country of the affiliate or imported) and sells the output to the group head, which invoices directly the final sales to the customers. Costs and profit of the group head are paid through the sales of the final product and in general the goods may not enter the country of the group head[2]. Separation of activities may be such that trade and administration activities of the group are located in still different countries, usually for minimising taxes by concentrating profits in lower taxation countries. In this case one affiliate of the group specialised in trade may acquire the ownership (but not necessarily the physical possession) of the products and distribute them worldwide.

This description is true for Swedish MNE:s since the early 1990-ies.
However, since the definition above comes from the SNA 2008 we identified the transactions without finding any description in SNA 93 or ESA 95.
In Sweden these transactions have been measured in the categories merchanting and goods for processing.
The value of merchanting transactions reported in the IMF Balance of payments for 2006 amounted to $40 billion and five countries accounted for about three quarters of this viz. Ireland, Belgium, Finland, Sweden and Switzerland(according to UNECE 2010, Impact of globalisation on national accounts: practical guidance). It is improbable that other countries haven't got these transactions. The gross amounts are much higher according to Swedish experience.

[1] Global manufacturing and its treatment in statistics has been discussed during the revision of SNA93 and BPM. This discussion took place under the topics of *merchanting* and *goods for processing* (background papers can be found under issue 41 of the AEG in the UN website dedicated to the SNA update).

[2] This aspect makes *global manufacturing* organisation similar to traditional *merchanting* in terms of transactions and change of ownership.

2 Sweden1998-2008

Long before these problems were discussed internationally Swedish cases of global manufacturing occurred starting 1995. The typical case involved big differences between the production value according to Manufacturing statistics and the sales according to Business statistics. The production according to Manufacturing statistics was lower than according to Business statistics and seemed to match export of goods. After discussions with the enterprise we discovered a typical case of triangular trade and consulted the Swedish Central Bank and Eurostat about how to treat the margin between invoiced sales and costs for these sales. The difference was treated as merchanting, which meant that the enterprise had to report both income and cost for the sales in question. The margin was included as production of merchanting and as export of services(merchanting). After that we discovered more cases.
Starting 2003 we started to ask for merchanting in the Structural Business Statistics(SBS) and foreign trade for services.
The Swedish outsourcing of manufacturing in large scale started in the late 80-ies when Swedish wages increased more than those of our competitors. At the same time there was an uncertainty about the possibility of Sweden joining the European union. There had been a similar move out of Sweden in the 60ties and 70ties concerning textile manufacturing but it is uncertain today if that resulted in merchanting or goods for processing.
The largest enterprises are very important for the level and development of the Swedish GDP. The value added of the100 largest Swedish enterprises was appr. 13 % of GDP both 1998 and 2008. The share was even higher in the year of 2000. The share of the 10 largest is appr. 5 %. This means that the largest enterprises play a very important part in the growth of GDP. Many enterprises in Sweden are dependent on deliveries to the largest, which makes their importance even bigger.

3 Definitions

Goods for processing

Goods for processing is treated the following way according to the balance of Payment Manual(BPM) [3]

BPM5	Goods sent abroad for processing and…		
	re-imported	sold to residents of the processing country	sold to residents of a third country
Sending country	**Goods exports** before processing and **goods re-import** after processing	**Goods exports** **Import of services** of the value of the processing	**Goods exports** **Import of services** of the value of processing
Processing country	**Goods imports** before processing and **goods re-exports** after processing	**Goods imports** **Export of services** of the value of processing	**Export of services** of the value of processing
Third country			**Goods imports**
BPM6			
Sending country	**Import of services** of the value of processing	**Goods exports** **Import of services** of the value of processing	**Goods exports** **Import of services** of the value of processing
Processing country	**Export of services** of the value of processing	**Goods imports** **Export of services** of the value of processing	**Export of services** of the value of processing
Third country			**Goods imports**

[3] This table is taken from Eurostat Final report of the task force on the recording of certain activities of multinationals in national accounts

The change in the treatment of goods for processing between BPM5 and BPM6 has been discussed very much and I will not discuss it further here. However, an advantage with the treatment in SNA2007 is that the processing value is measured net as a service both when the goods is taken back to the sending country and when it remains in the processing country or is sold to a third country.
The really difficult problems are created by the cases where the processed good is not reimported but sold to a third country. The value of the final export to a third country including the value of the processing service and profit cannot be found in the export statistics for goods. The only way to find these values is to ask the enterprise.

Merchanting

Some Swedish enterprises let foreign enterprises produce their products and buy the products from the foreign enterprises. They then invoice the customers abroad without the products entering Swedish territory.
These transactions are similar to the trading of so called merchants (merchanting according to the BOP – manual). This is the reason why we include them in merchanting. Since the amounts involved are considerable and also change over time our results become difficult to interpret for example when you discuss productivity.

In SNA 93 14.60 merchanting is described

” The following exception is one in which a change of ownership may occur but is ignored in the accounts. The exception relates to merchants or commodity dealers who buy commodities or other goods from non-residents and then sell them again to non-residents within the same accounting period without the commodities actually entering the economy in which the merchants are resident. The difference between the receipts and the sales of such dealers is treated as measuring the value of the services they provide and recorded under exports or imports of services.”

Why are these transactions treated as margins and not as imports and exports of goods? According to SNA 93 and ESA 95 the most important criteria for exports/imports of a product is change of ownership. Since foreign trade often is recorded when a border is crossed, merchanting is a problem. The border of the selling country is not crossed. This seems to be the reason why merchanting is recorded net as a margin and not as a product in of SNA 93.

We noticed several cases of transactions similar to merchanting made by multinational enterprises. In most of these cases they do R&D in Sweden and buy their own product from a manufacturing enterprise abroad. This enterprise is in some cases a daughter company, but is in other cases not related to the Swedish MNE. The Swedish company does not provide any

part of the input, only the design of the product. The manufactured product is transported directly from the manufacturing country to a customer in a third country. The Swedish MNE buys the product from the enterprise which manufactures it and invoices a higher price to the customer in the third country. The margin is often seen as pay for R&D made in Sweden, but this is not entered in the enterprise accounts. In most cases there is also a time lag between the R&D and the manufacturing and invoicing of the product. Other explanations to the margin are fees for costs the Swedish enterprise has for marketing costs and profits. Transfer pricing can also be involved.
As explained abovet we decided to treat these cases of transactions as merchanting.

4 How to measure merchanting

Before 2003 the Central Bank collected information on income from traditional merchanting and calculated the margin using a fixed margin rate. Information on some big enterprises dealing with Global manufacturing was also collected or corrected for after information from Statistics Sweden. In 2003 the survey of foreign trade in services was created by the Central bank and Statistics Sweden. In this survey questions are asked from all enterprises in the sample about both income and cost for merchanting. The questions asked are :

B. Income from and costs of international trade in services

122 Goods not crossing Swedish border (merchanting)
Merchanting is defined as the purchase of goods by a Swedish party from a foreign party and the subsequent resale of the goods to another foreign party, where the goods do not cross the Swedish border. It is the gross value of the merchanting goods that should be recorded.

123 - Purchase cost for merchanting goods sold during the period (quarter)
Covers the total purchase cost (regardless of when the goods were purchased) for merchanting goods sold during the period. The difference between the values of the goods when acquired and when sold is defined as *merchanting services*.

At the same time, 2003, questions about merchanting were also introduced in the Structural Business Statistics.

It turned out that the total export of merchanting in 2003 was much higher in level according to the new survey compared to the old. The reason was that all enterprises in the sample were asked and it also turned out that the margin rate used was too low. Still about 80 % of export of merchanting(the part that really is global manufacturing or global wholesaling) comes from four or five big enterprises.
In our view you have to gather information on merchanting through surveys. In these surveys information about both income and cost for merchanting must be collected. A close contact must be kept with the biggest enterprises

to ensure that they understand what information we want. Often they don't understand what information is needed in the National accounts until after detailed discussions.

5 The Large Enterprises Management Unit

In March 2004 a new organisational unit was created at Statistics Sweden. One essential task is to keep an eye on the 50 largest enterprises in Sweden.
Good quality data from the largest enterprises is essential to achieve good quality in economic statistics. At the same time, the response burden on the largest enterprises is very large, and their willingness to provide good quality data may decrease as the demand for statistical information increases. Furthermore, the collection of data from global enterprise groups that continuously reorganize their operations poses special challenges. To solve this problem in Sweden, a group of dedicated contact persons has been established. The group has a broad scope of tasks, ranging from following and understanding the enterprises, profiling the statistical units and keeping the Business Register up-to-date to working extensively with actual data collection and coherence analysis.
The largest enterprises were identified by the main economic indicators (turnover, value added, exports, employment etc.).
In the long run, it is supposed that the data editing, as a result of coherence analysis, will decrease. Working closely together with the enterprises, and establishing if necessary specific solutions for each enterprise, will probably mean that the enterprises will provide high quality data in their normal data provision process and that the need for post-collection editing will decrease. Earlier information on changes is expected.
One very important aspect is the possibility to discover errors and inconsistencies when they occur and correct at an earlier time, when the needed information is still possible to get from the enterprises.
For the National Accounts this is an improvement. When problems arise concerning one large enterprise at least five sources are concerned but one person coordinates the investigation and the contacts with the enterprise.

The Large Enterprises Management Unit of Statistics Sweden is essential for solving problems of this kind. They have all the statistical information from the enterprise and can put the right questions. When big differences occur the starting point is a discussion between responsible persons at the National Accounts, the involved surveys and the Large enterprises unit. After contact with the enterprise a decision is taken about the principles. If this is done at an early stage we can avoid revisions two years later when the annual surveys are completed and compared.

6 Example 1- Example 4

Example 1

Transactions between Swedish MNE:s and independent manufacturing enterprises abroad
The following transactions are taken from a Swedish MNE (the amounts shown here are simulated to show the structure of one year) :

Income from sales abroad	25 000
Expenditure on products manufactured abroad	18 750
Margin on sales abroad (= production of merchanting)	6250
Input	5000
Value added	1250
Compensation of employees	1000
Gross operating surplus	250

In this example the invoiced gross amount is high, but leads to a small operating surplus. This example concerns a year with small profits. The input is mainly used for the production of R&D. In the real figures the value added was even negative for one year.
According to the accounts this enterprise produces a margin, but their employees in Sweden work with R&D. The margin of sales abroad pays for the development of new products. According to SNA we could impute production of R&D with production costs but in that case we would have to impute a corresponding export. This export of a service has no recorded counterpart import in another country. The manufacturing of the product is made by several subcontractors abroad. No manufacturing is performed in Sweden.
Correction for transfer pricing is rare but has to be made sometimes when the cost changes differently from the income in the quarterly calculations.

Example 2

Transactions with a daughter enterprise
The enterprise of example 2 produces some of its products in Sweden and some through a daughter company abroad. The Swedish mother company buys the produced product from the daughter abroad. The product is not imported to Sweden but the mother enterprise invoices the customer in the third country to which the product is sold. A margin is recorded in the enterprise accounts. The mother enterprise considers this margin to be payment for R&D. But some of it might be profits which are brought to Sweden through too low prices paid to the daughter. This part of the margin should ideally be excluded. This can only be done through imputing a market price.
According to SNA 93 14.43

“ a substitution of an imputed or notional market value for an actual transfer value in the case of goods transactions between affiliated enterprises should be the exception rather than the rule because of both conceptual and practical difficulties involved. In any event, if it is determined that certain transfer prices are so divorced from those of similar transactions that they significantly distort measurement, they should, if possible, be replaced by market equivalents or, if not, be separately identified for analytical purpose.”

This is described in more detail in the Balance of Payments manuals. According to our information we think that market prices are recorded for this enterprise. This can change over time but it would be difficult to impute market prices that differ from what is recorded in the country of the daughter company.
A solution where the Swedish enterprise produces R&D is also possible but difficult to coordinate with other countries.

Example 3

Goods for processing sent to third countries

This enterprise manufactures a product which is exported in parts. The parts are exported to a country in which the finished product is put together by a daughter company. In the Swedish export value of goods the value of the exported parts is reported without the processing value. The finished product is not taken back to Sweden. The finished product is invoiced from Sweden and the full value of the finished product including profit and the cost of the processing is reported in the SBS. The country from which the finished product is exported in fact only exports a processing service to Sweden and sends the product to a third country. They probably report an export value including the processing value but without profit. In Sweden we have a problem in balancing production with imports and exports. We tried to solve this problem by introducing merchanting for the margin but without having the details of imported processing services and profit margins. After new discussions with the enterprise we have these facts. It turned out that we had underestimated the total export value. The next problem is how to treat the missing export value. We believe that this is a typical case of processing where the product is not reimported. There are difficulties in implementing this solution. But the net result is the same whether we treat the transactions as merchanting or processing. There also are problems implementing a good solution in the Foreign trade statistics in goods. Further problems exist, especially concerning inventories.

Example 4

Change of invoicing managing

In the survey of Foreign trade for services Statistics Sweden asks for income from merchanting and the cost for the goods sold through merchanting. This means that new cases of problems with global manufacturing are discovered quickly. After two years we then get results from the SBS, which also asks for merchanting.

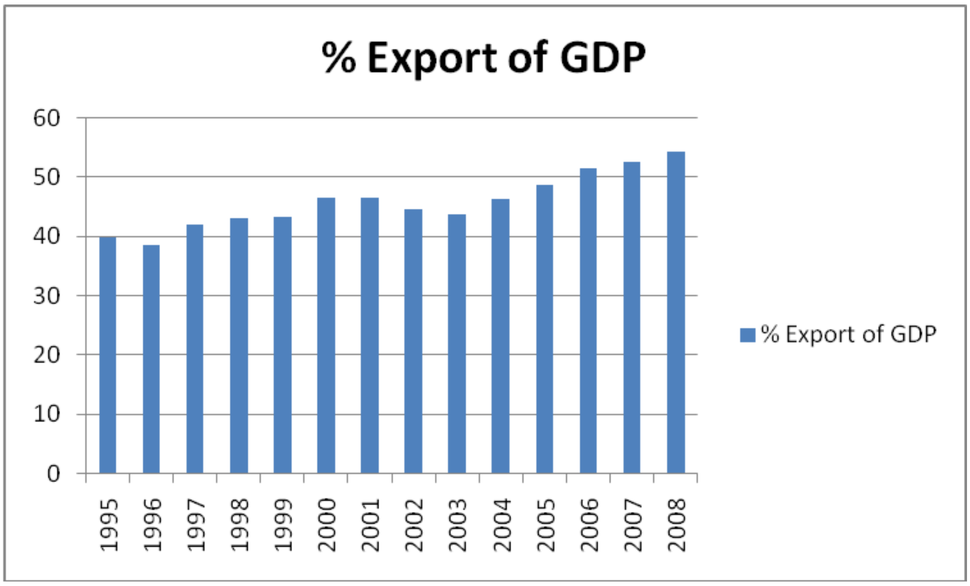
We have discovered that a Swedish MNE has changed its reporting starting at the end of 2007. They now report a high amount of merchanting.
The reason is that they have reorganised their activities. The global total of their production (retail and wholesale margin) has not changed much, but the part registered in Sweden has increased very much.
The enterprise has a Swedish mother company and daughters in many countries. They sell consumer products, which are designed in Sweden and manufactured abroad in many countries. Before 2007 the daughters have bought the products directly from the manufacturer and sold to consumers in the shops of the country of the daughter company. The daughter companies have earned a retail margin and made a profit which to a large extent has been transferred to Sweden through dividends.
Inventories have been managed by each daughter.
A new unit has been created in Sweden in 2007. This designs the products, makes contracts with manufacturing companies abroad, buys from manufacturing units abroad and keeps inventories abroad. This means that a large part of the margin from the daughter companies now turns up as wholesale margin (merchanting) in the new Swedish company. The dividends paid by the daughters to Sweden will be much smaller than before although at the moment we don't know the exact amount.
In the country of the daughter company the trade margin and dividends transferred to Sweden becomes smaller. The products are imported into the country where it will later be sold and are put into an inventory valued at purchasers prices. This is probably reported as import of a good to the country valued in the same way as before since import of goods is reported according to when a border is crossed. The Swedish company considers that it owns the inventory even though it is located abroad. The Swedish unit then invoices the daughter company for the wholesale value. The Swedish enterprise unit reports the margin earned abroad as income from merchanting. Apart from buying and selling they manage inventories abroad and design the products. The Swedish tax authorities have approved of this treatment.

The new organisation has led to new merchanting figures and the Swedish GDP level has increased substantially in current prices but the Swedish GNI is more or less the same since dividends from abroad will be smaller(maybe with the exception of the first year when the dividends come from the year before with the old treatment). But how should this new level be introduced in the accounts in constant prices ? There is especially a problem in constant prices since most of the margin value now is attributed to Sweden but the total value of the margin earned all over the world changes only to a small extent between two years. Should we use the global volume change for the

sales when we calculate the volume change between the years? In the country of the daughter company the volume of sales has not changed, only the prices paid, which means that the same applies to Sweden. What is produced in Sweden does not change much in volume. So we tend to believe that the change in volume between 2007 and 2008 should reflect the total change in volume between 2007 and 2008 as it has occured in each country of the daughter enterprises. We don't think that we have enough guidelines for constant price calculations in these cases.
In current prices a merchanting margin has been introduced as export and production. Imports of services such as transports and keeping of inventories have been recorded. This import is used as intermediate consumption.
For 2008 only the volume change between the two years is recorded as exports. This means that the price change of the wholesale margin between the years is very high.

7 GDP comparisons

The Swedish economy is very dependent of exports. The share of exports of GDP is 2008 over 50 % compared with 40 % 1995.



The growth rate of GDP is also affected much by exports and net exports.

Growth of GDP and export

År	GDP	Export	Net export
1996	1.5	4.1	7.8
1997	2.5	13.6	19.5
1998	3.8	8.7	-2.8
1999	4.6	7.1	18.1
2000	4.4	11.5	10.6
2001	1.1	0.8	17.4
2002	2.4	1.3	16.2
2003	1.9	4	5.4
2004	4.1	11	33.4
2005	3.3	6.6	5.2
2006	4.2	8.9	10
2007	2.5	5.8	-13.6
2008	-0.2	1.8	-4.6

Merchanting is sometimes important for GDP growth.

	BNPinkl	BNPexkl
1994	3.9	3.7
1995	4	3.9
1996	1.5	1.5
1997	2.5	2.3
1998	3.8	3.6
1999	4.6	4.4
2000	4.4	4.4
2001	1.1	1.2
2002	2.4	2.4
2003	1.9	1.8
2004	4.1	3.6
2005	3.3	3
2006	4.2	4
2007	2.5	1.9
2008	-0.2	-0.2

For two years merchanting has a big impact, 2004 and 2007.

8 Terms of trade

The export growth of Swedish GDP 1995-2009 occured in constant prices. The products which were important for Swedish export, often produced by global manufacturing, tended to have a smaller price increase compared with the Swedish import. We had for this period a negative terms of trade.

Real GDP *For an open economy like the Swedish, it is interesting to analyse the effect of foreign trade on GDP. This is done by comparing the estimate of GDP in constant prices with the estimate of GDP in real terms.*
Real GDP is calculated by dividing the GDP figure in current prices with the total price change of domestic final use for the period in question.
The difference between GDP in constant prices and real GDP is called the terms-of-trade-effect.
An improvement in a nation's terms of trade is good for that country in the sense that it has to pay less for the products it imports ,it has to give up fewer exports for the imports it receives.

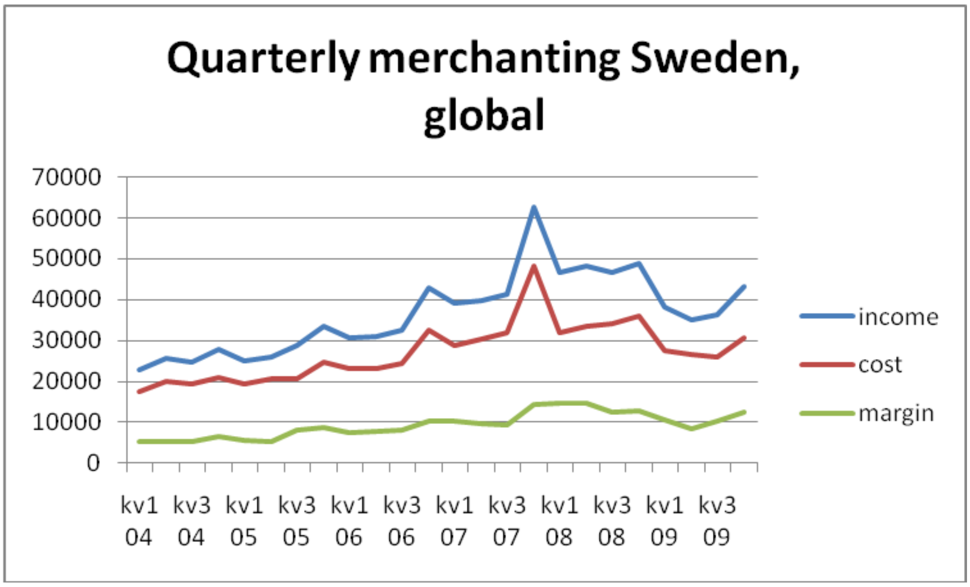
Volume index per capita for Sweden

	GDP	*Real GDP**
1995	100	100
1996	101.5	100.7
1997	104.1	103.1
1998	108.5	107
1999	113.4	110.6
2000	118.3	114.6
2001	119.5	115.1
2002	122	116.5
2003	124.4	118.5
2004	129.2	122.3
2005	132.7	124.9
2006	137.6	129.5
2007	141.2	133.6

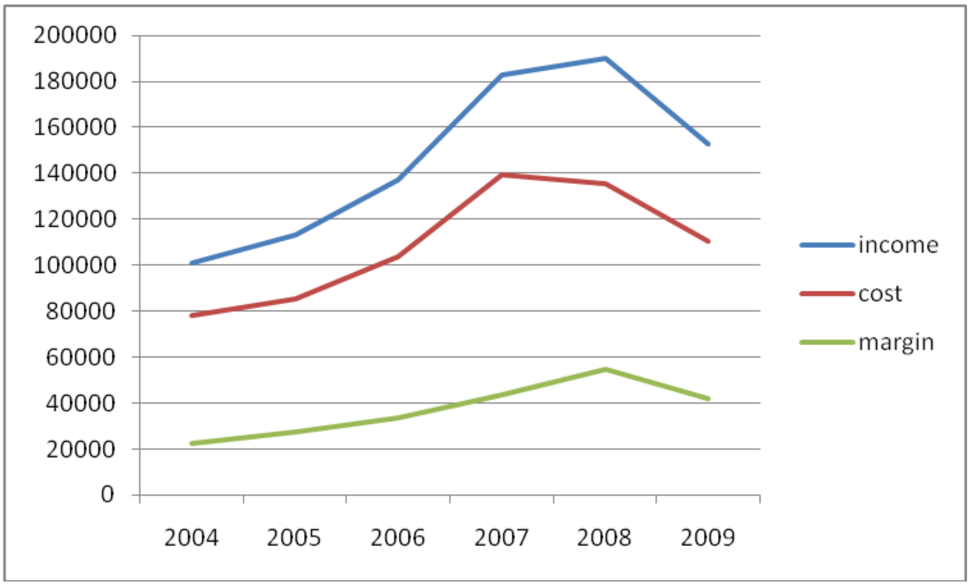
9 Merchanting 2004-2009, quarters and years

The biggest enterprises with global manufacturing have a share of around 80 per cent of the total merchanting (in current prices). We have close contact with them and try to get consistent values for both income and cost for merchanting (global manufacturing). For quarters we get information from the Survey of exports in services. In the tables below these enterprises are called global. Since detailed information is difficult to find before 2004 the following comparisons are made for 2004-2009.

Quarterly merchanting in Sweden 2004-2009, million SEK

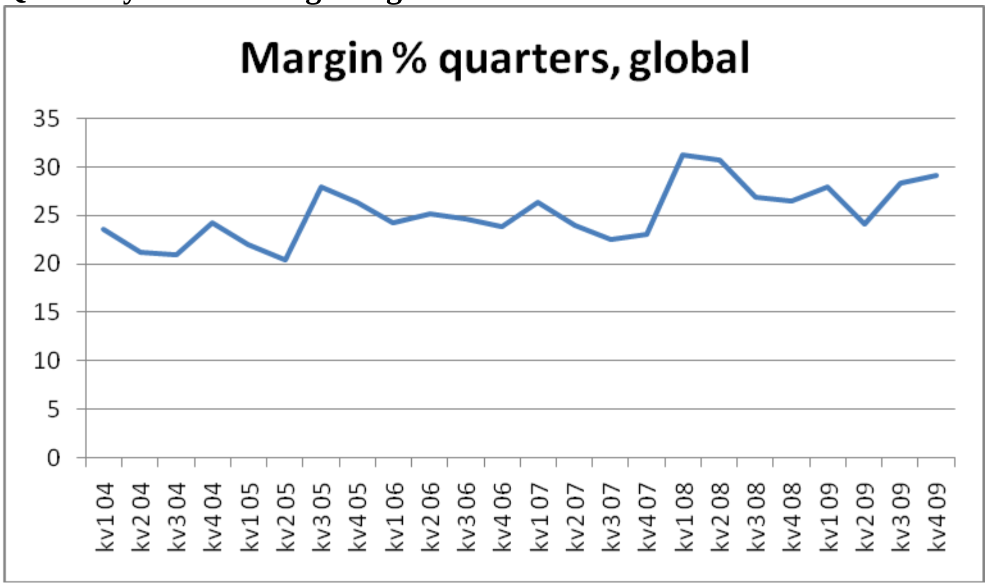


Annual merchanting in Sweden 2004-2009, global, million SEK



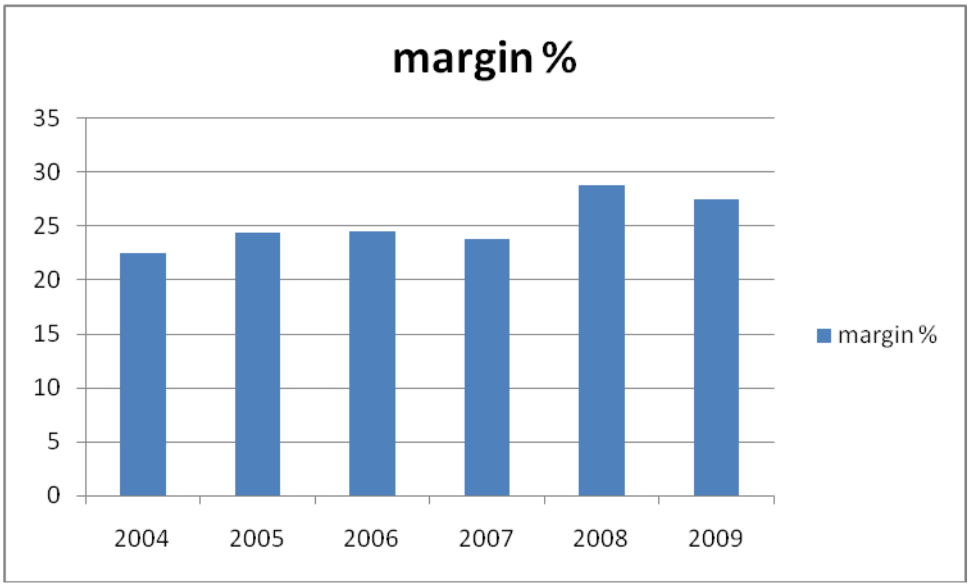
Income and cost follow more or less the same pattern. This means that we manage to get the cost associated with the sold products for each period, which is what we ask for. For some quarters we have had to correct the quarterly cost, which is more unreliable than the annual cost we recive when four quarters are available. It is also evident that the variations of demand for products on the international market has a big impact on the sales of these enterprises. The value of the margin in current prises was more than 100 % higher in 2008 than 2004. The level then dropped in 2009 to near the level of 2007.

Quarterly merchanting margin



The quarterly margin is calculated as the value of the margin as share of income from merchanting for each quarter.

Annual merchanting margin, global



The average margin for the big enterprises is between 20 and 30 per cent but varies much between different enterprises and also over time.
For the other smaller enterprises, which are not included in the diagram, the average margin is lower(15 to 20).

10 Conclusions

The Swedish enterprises with global manufacturing do most of their development of new products in Sweden. Even though the product is manufactured abroad and the majority of their employees in Sweden do R&D, they consider that they produce and sell a goods. The merchanting transaction they consider as a normal export of a goods(but the rules of foreign trade statistics lead to problems with their statistical reporting). They sell a product (which they own) through invoicing from Sweden and paying a sub-contractor abroad for the manufacturing. The margin is necessary for doing R&D and for sales promotion and profits. Profits abroad can also be taken to Sweden through dividends, but that is a slower and more uncertain way and in many cases the sub-contractor is not an affiliate. So the conclusion is that the global manufacturing version of merchanting will be important in Sweden at least as long as the R&D is controlled from Sweden.
The new treatment of merchanting in SNA 2007, where merchanting is treated as a trade margin on goods, makes it easier to compare export and import of services and goods between countries in a consistent way. But total export is consistent between countries already in SNA 93.
The Swedish export values of services have sometimes been difficult for users to forecast, since merchanting is included.

I cannot at the moment make an estimation of the importance of goods for processing abroad. The changed definition in SNA2007 makes it even more necessary to investigate this in the future.

I draw the following conclusions :

1) You need to keep a close contact with the big enterprises to discover global transactions and keep track of changes in their behaviour.
2) The big MNE:s have problems to report according to National Accounts guidelines and report Swedish transactions.
3) A way to get better reporting is to have some kind of Large Enterprises unit.
4) You must ask for both income and cost for merchanting and you have to ask for it in surveys.
5) Transfer pricing is difficult to adjust for and adjusting should be avoided in most cases, but sometimes you have to adjust.

6) When a big enterprise changes its behaviour it affects many calculations in GDP and GNI and also calculations in constant prices.
7) Sometimes the information you need cannot be found in the country where manufacturing takes place.
8) It is difficult to interpret productivity measures on detailed activity level if merchanting is included.
9) For Sweden a small number of enterprises have a big impact, which means one has to be very careful about secret information.