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**SPPI for Freight Water Transport in
Sweden**

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1 Definition of the sector being priced

According to NACE Rev. 2 the division Water transport consists of the groups *Sea and coastal passenger water transport*, *Sea and coastal freight water transport*, *Inland passenger water transport*, and *Inland freight water transport*. The sea and coastal transport sector is very much larger than the inland water transport sector in Sweden, and according to industry representatives the prices on the inland transportation market follow the prices on the sea and coastal market. Because of this the sea and coastal transport gets to represent all Swedish freight water transport in the SPPI. Passenger water transport is not included in the SPPI since it is dominated by private consumption and therefore is covered in the CPI.

Table 1. Water Transport according to NACE Rev. 2 and ISIC Rev. 4

NACE Rev. 2			ISIC Rev. 4
Division	Group	Class	
50 Water transport	50.1	50.10 Sea and coastal passenger water transport	5011
	50.2	50.20 Sea and coastal freight water transport	5012
	50.3	50.30 Inland passenger water transport	5021
	50.4	50.40 Inland freight water transport	5022

2 Structure of the Swedish water transport market

As mentioned above the Swedish freight water transport market mainly consists of sea and coastal transport. The reason for this is that Sweden has a very long coast and only a few inland waterways. As we can see in Table 2 below the sea and coastal freight transports represent 99.6 percent of the turnover for freight water transports, and 65.4 percent of the turnover for all water transports (passengers and freight).

Table 2. Turnover in the water transport sectors in Sweden (SEK billions)

Sector	Turnover
Sea and coastal passenger water transport	12.7
Sea and coastal freight water transport	25.9
Inland passenger water transport	0.9
Inland freight water transport	0.1

Figures from 2007

Sea and coastal water transports can be divided into two different subsectors; liner shipping and tramp shipping. Tramp shipping can further be divided into one-way freight and time charter. To find out each subsector's share of the total market Statistics Sweden has cooperated with industry representatives and researchers. The tramp market changes over time and the distribution between time charter and one-way freight is variable. When the market is booming the freight owners want to assure that they have enough transport capacity and rent ships on the time charter market that thus grows. During a freight market depression the freight owner's are not interested in renting ships and the ship owners choose to operate on the one-way freight market. The consequence is that the time charter market decreases and the one-way freight market grows.

In Table 3 each subsector's share in year 2008 is presented, these are used as weights in the SPPI for 2009.

Table 3. Different subsectors' share of the freight water transport sector in Sweden

Subsector	Share
Liner shipping	0.37
One-way freight	0.36
Time charter	0.27

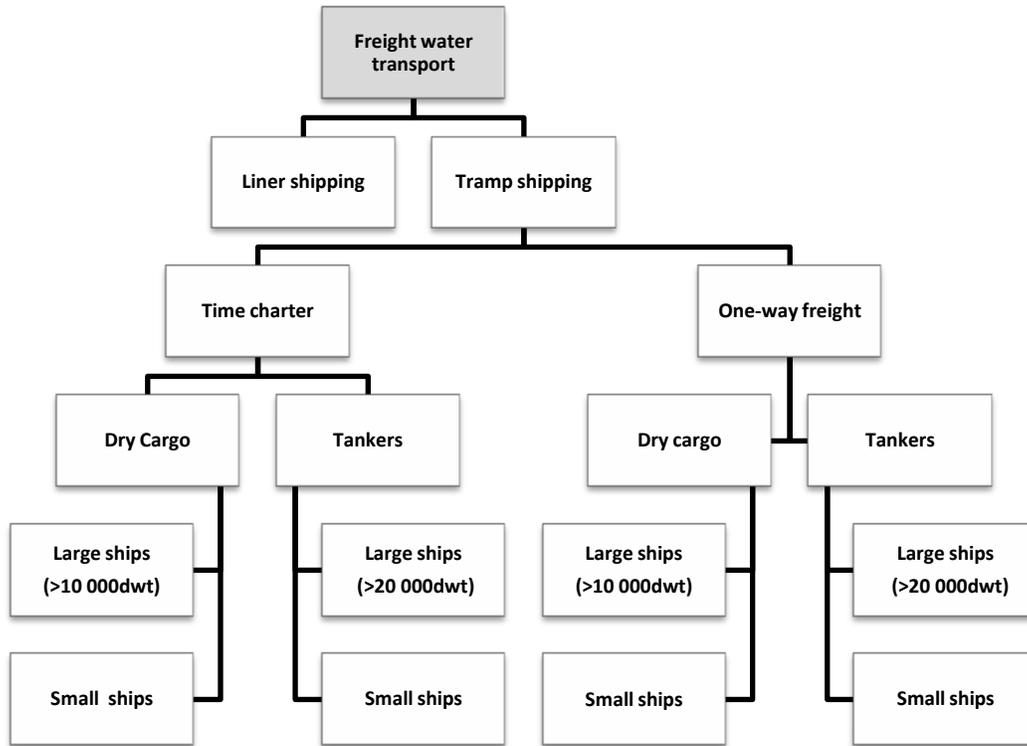
Figures from 2008

3 Structure of the survey

In the SPPI the tramp shipping sector is, apart from the division described above, also divided between small and large ships and between type of ship (freight); namely dry bulk and tankers. The intention with the split up between small and large ships is to separate the short sea and coastal transports from the long distance sea transports. The short sea and coastal transports refers to freight transported in the Baltic Sea and the North Sea and is a regional market with its own price development. The long distance transports can be performed anywhere in the world and the prices are set on the world market. The dry bulk ships are classified as large if they can load more than 10 000 dead weight tonnes (dwt) while the tankers are classified as large if they can load more than 20 000 dwt.

The reason for the split up between dry bulk and tanker is that the price development on these two markets can be rather different. Prices are thus collected from nine different markets that are presented in Diagram 1 below.

Diagram 1. Schematic diagram of the structure of the Swedish SPPI for freight water transport



4 Pricing methods

When the index was developed in 2003 the intention was to use Model Pricing. This did however not work satisfactorily and gradually Unit value and Contract pricing was introduced instead. After a few years Statistics Sweden received reactions from data providers who felt that the existing survey was impossible to respond to, and that the results were misleading. Comments were also received from the Swedish National Accounts that the survey failed to include oil transports. Because of this the index was reviewed during 2007. During the review the existing survey was thoroughly examined, problem areas were identified, and above all important contacts with the industry were established.

4.1 Tramp shipping

As a consequence of the review, tramp market prices are no longer collected from the ship-owners. The reason for this is that it was virtually impossible to identify representative repetitive services on the spot market (one-way freight), and especially for oil transports. The ship-owners found it very difficult to find a service to track over time, and making an estimate of the price was practically impossible since the price is often determined after intensive

negotiations. On top of that, the ship-owners often don't take part in these negotiations but mostly get a representative, a shipbroker, to negotiate on their behalf. Shipbrokers normally have a better overview of the market prices since they make considerably more business deals. The brokers always have up to date information about the market prices and are therefore the best source for price information. Due to these reasons price quotations from the tramp market are nowadays collected from shipbrokers instead of ship-owners.

Previously prices were collected quarterly since the SPPI is calculated quarterly. This was a problem since the prices on the tramp market are so volatile, especially in the one-way freight market segment, which is a spot market. Prices can fluctuate considerably in just a few weeks and stating a price at a given point in time during the quarter could be misleading. To improve the representativeness of the price data, price data are now collected weekly.

4.2 Liner shipping

Liner shipping is very different to tramp shipping since the routes are fixed and are sailed according to a schedule. This means that the same services are repeated regularly and that we can observe prices for identical services each quarter. Liner shipping mainly functions in two different ways. In the first case it works as a bus line where the exact same route is sailed very frequently and anyone can buy the transport service. In Sweden this kind of traffic is usually short-distance. In the second case the ship-owner signs a contract with a customer, usually a producer of some kind of goods, to sail according to a fixed schedule during a settled period of time.

In the first case the prices are normally standardised and price lists for different kinds of standard transports exist. For this type of transports a sample of list prices are used. In the second case the prices are negotiated for a predefined period or an open ended period. Since the same service occurs by the same producer for the same client in each survey period contract prices are used. To ensure that new or renegotiated contracts are constantly included in the survey contracts with different durations are sampled.

5 Sampling

Prior to the review the sampling procedure functioned the same way as in most other SPPI surveys in Sweden. Enterprises were drawn from the Statistics Sweden Business Register using PPS sampling. The Business Register was however not a sufficiently good sampling frame since it does not distinguish between companies active in passenger transport and those active in freight transport.

For liner shipping a new sample frame was constructed combining information from Statistics Sweden's Business Register, the Swedish Book of Shipping, annual reports from the Swedish

shipping companies and contacts with industry representatives. From this frame a sample of enterprises is drawn each year. Currently the sample size is eleven.

For tramp shipping no sampling of enterprises is necessary since prices are collected from three different shipbrokers for a number of routes and cargo types that are representative for the Swedish market. The type of cargo to be measured and which brokers to talk to are issues that have been discussed with the Swedish Ship-owners' Association and other actors with knowledge about the industry. The sample is described in the next chapter.

6 Collection of prices

The price data collection follows the structure presented in Diagram 1 and the description of the collection below follows this structure.

6.1 Tramp shipping

6.1.1 Dry cargo

Dry cargo is in Sweden mainly transported in two kinds of ships; dry bulk vessels and ro-ro (roll-on/roll-off) vessels. The ro-ro traffic is normally liner transport and is therefore included in the liner shipping survey and not included here. The remaining dry cargo is therefore bulk.

For **large dry bulk vessels** an index called Baltic Dry Index is used. This index is used for dry cargo vessels over 10 000 dwt and is compiled by the members of the large freight market exchange The Baltic Exchange in London. The way this works is that a panel of shipbrokers from all over the world continually reports the prices they negotiate in their business deals. The price data are then weighed together into an index that is updated daily. To gain access to this index Statistics Sweden cooperates with Gothenburg Chartering (a Swedish shipbroking company specialised in dry cargo) that delivers the Baltic Dry Index to us every Monday.

The Baltic Dry Index measures prices on the spot market. For the time charter market an estimate is given once per quarter by Gothenburg Chartering regarding the prices for 12-month charters of three different vessel sizes (handysize, panamax and capesize).

For **small dry bulk vessels** price estimates are obtained from the shipbroking company Ivar Lundh & Co. A sample of representative voyages represent the price movement for all transport services performed by Swedish ship-owners using vessels in this size category. Prices in EURO/tonne are obtained for a number of transports (steel from the Baltic Sea Region to the ARA¹ area and wood-pulp from the ARA area to the Baltic Sea Region). The prices are stated in a market report that is obtained weekly via e-mail.

¹ ARA = Amsterdam-Rotterdam-Antwerp

The market information from Ivar Lundh is hence used to estimate the price movements on the spot market for large dry-bulk vessels. According to several market actors the prices of new contracts on the time charter market follow the prices on the spot market for this type of ships. Since the survey is intended to measure the entire stock of valid contracts and not just the contracts signed during the measurement period, a moving average of the spot market prices is calculated. To do this, information is needed about how long an average time-charter contract is. Using data from the industry, it has been established that an average contract time of nine months should be used for small dry bulk vessels.

6.1.2 Tankers

For **large tankers** the Worldscale Index is used. Worldscale is an international freight tariff used for tankers over 20 000 dwt and consists of a long list of possible combinations of departure ports and arrival ports throughout the world. In cooperation with Stockholm Chartering (a Swedish shipping agency specialised in tankers) a sample of voyages that are representative for Swedish ship-owners has been selected. Stockholm Chartering publishes the average index numbers for a number of routes on their web page and from there the index numbers for the selected voyages are collected weekly.

For **small tankers** (as for small dry bulk vessels) price estimates are obtained from the shipbroking company Ivar Lundh & Co. In cooperation with them a sample of voyages that are representative for Swedish ship-owners has been selected. Prices are obtained in USD/tonne for a sample of transports of oil and chemicals between a number of different ports in the Baltic Sea and the ARA area. The prices are stated in a market report that is obtained weekly via e-mail.

As for small dry bulk vessels, moving averages of the spot market prices are used to estimate the price movements on the time charter markets for small and large tankers. Using data from the industry, it has been established that an average contract time of two years should be used for both small and large tankers.

6.1 Liner shipping

Price quotations from the liner shipping enterprises are collected quarterly via web-questionnaires. The fourth quarter the respondents are asked to specify between one and eight services (transports) that are representative of their business. The services are then fixed during the year and only the prices can be changed. If the respondents want to change the service specifications they have to contact Statistics Sweden. Most transports are within northern Europe but a few long-distance transports are also included. The total number of price quotations per quarter is 40.

7 Results

The results are presented in Diagram 2 below. The liner market and the tramp market correlate rather closely until the end of 2006 when the tramp prices increased while the liner prices decreased. We can see that both markets are affected by the current economic crisis and that the tramp market was affected earlier. The decrease in the prices has been counteracted by currency effects. Most market prices are set in USD and EURO and are then converted into Swedish currency by Statistics Sweden. Since the Swedish krona (SEK) has depreciated against both USD and EURO this means that prices in SEK have decreased less than prices in USD and EURO.

Diagram 2. Swedish SPPI for freight water transport

