Voorburg Group on Service Statistics

24RD MEETING
OSLO 14-18 SEPTEMBER 2009

TURNOVER IN THE WATER TRANSPORTATION INDUSTRY IN SWEDEN

SESSION ON TURNOVER/OUTPUT FOR WATER TRANSPORTATION

Statistics Sweden

Jonas Färnstrand
jonas.farnstrand@scb.se

1. Background

Structural Business Statistics (SBS) is an EU-regulated survey carried out annually. Prior to 1997, a sample was drawn every year to gather economic information (including turnover) about the business sector for various industries in Sweden. From 1997 and onwards Statistics Sweden has access to the enterprises income tax return forms via the Swedish Tax Authority (Skatteverket). In this way, Statistics Sweden gets information from all the enterprises in Sweden regarding main economical variables such as turnover, cost of trade goods and raw material, cost of personnel, financial incomes and costs, assets and debts etc.

Up until 2002 turnover on product level was surveyed intermittently in different industries, usually every fifth year. The increased concentration on economical statistics in general and the service sector in particular has led to an annual survey of all industries. This means Statistics Sweden now annually has information on turnover per product group for the industries required by the National Accounts (130 industries at present).

This sector paper concentrates on the turnover in the Water Transportation industry and the turnover by products.

2. The purpose of the survey

To satisfy the needs of the National Accounts, Statistics Sweden annually surveys the water transportation industry regarding turnover per product group. Today, enterprises can specify their turnover into approximately 450 product groups, of which 9 belongs to the water transportation industry.

Statistics Sweden also needs to fulfil the requirements of the EU regulation. This means that, within the water transportation, Statistics Sweden annually delivers turnover by three digit NACE level and size class.

Finally, Statistics Sweden cooperates with SIKA (Swedish Institute for Transport and Communications Analysis). SIKA is an agency responsible for statistics in the field of rail transportation, public transport, communication patterns, air transport, postal services, telecommunications, sea transport and road transport.

3. Methodology

3.1 Prior to 2003

Prior to 2003, all enterprises with at least 50 employees were surveyed. This sample method led to a skewed distribution between the manufacturing industries and the other industries. Manufacturing enterprises are much fewer in number but on the other hand bigger in terms of turnover and number of employees, which made the number of manufacturing enterprises surveyed almost as many as the number of service enterprises surveyed.

In 2002, there were 717 000 enterprises in the population. 55 000 of these belonged to the manufacturing industry and 440 000 of these belonged to the service sector, of which 900 belonged to the water transportation industry. The remaining enterprises were found in agriculture, forestry, mining, construction and the energy industries.

The total sample in 2002 was approximately 4 400 enterprises. This amounted to 0.6 percent of the total number of enterprises but 58 percent of the total turnover in the business sector. Within the manufacturing industry a relatively large share of the enterprises have more than 50 employees. This led to a sample of 1 700 objects, which covered 3.2 percent of the number of enterprises and as much as 79 percent of the turnover within the industry. Within the service sector the picture is somewhat different. A large share of the enterprises are small, and the sample of 2 300 enterprises covered only 0.5 percent of the enterprises and 48 percent of the turnover.

Within the water transportation industry, 49 enterprises were surveyed. This corresponds to 5 percent of the number of enterprises or 72 percent of total turnover.

3.2 2003 and onwards

For reference year 2003 and onwards, the sample procedure was modified due to the shift of focus to the economical statistics in general and the service sector in particular. The aim with this shift was to improve the quality of service sector statistics. Statistics Sweden now uses administrative data (i.e. the enterprises income tax return forms) to a larger degree, as a means to improve the quality of the sample. The information available from Prodcom (An EU-regulated survey measuring the production in the manufacturing sector on a detailed level) is also used to lessen the response burden for enterprises within the manufacturing industries.

For reference year 2003, 10 200 enterprises were surveyed, of which 7 800 belonged to the service sector. For reference year 2007, the sample had increased to 14 900 enterprises, of which 12 000 belonged to the service sector. Within the water transportation industry 110 of the industry's total 1 120 enterprises were sampled. This means that 10 percent of the total number of enterprises were surveyed, covering approximately 88 percent of the total turnover.

In the new activity code classification (SNI2007) the water transportation industry is divided from three detail groups into four detail groups.

The new sample method also means that Statistics Sweden now has annual information about industries only consisting of enterprises with fewer than 50 employees. A fine example of this is hairdressers, an industry with almost 20 000 enterprises, but not a single one with 50 employees or more.

3.3 Stratification

The stratification aims at covering as much of the turnover and as many products as possible. For reference year 2007, the stratification was usually made on four-digit NACE level or the national five-digit level. This means that the water transportation industry is divided into two different strata.

Table 1 Number of enterprises in Water Transportation stratum

Stratum	Number of enterprises in the population	Number of enterprises in the sample
61.1	650	67
61.2	470	43
Total	**1 120**	**110**

The information above is from the time of the sample. When controlling the material, enterprises classified in incorrect industries are usually discovered. The final number of enterprises within the water transportation industry may thus slightly differ from the original number.

3.4 Sample

The sample method used is the so called πps-sample, where the size measure S equals total turnover plus total cost is gathered from the enterprise's income tax return form, which Statistics Sweden gains access to in August year t+1. This sample method means that the higher the turnover of the enterprise, the higher the probability to be sampled. The method also means that a number of enterprises are drawn with probability 1. A positive feature with this method is the ability to control the sample size depending on the amount of turnover wished to be covered. Since the population changes can be significant between two years, and especially in the service sector, a new sample is drawn every year.
As mentioned earlier, 88 percent of the turnover within the water transportation industry was covered for reference year 2007.

3.5 Variables

By awaiting the income tax return forms, Statistics Sweden is able to pre-print values on the questionnaires and thus simplify the task of the respondents by only asking them to answer specifications of main variables, e.g. turnover. Furthermore, Statistics Sweden adjusts the questionnaires with regard to industry and, if available, the enterprise's returned questionnaire from the year before, t-1. The questionnaire consists of the following four parts regarding turnover on product level:

1. The industries main variables – activities/products that are common in the enterprise's industry.
2. Other industry variables – activities/products that exist within the industry but are not as common.
3. Answers from earlier years – other activities/products that the enterprise has pursued/sold earlier.
4. Other variables – activities/products that are not normally part of the enterprise's industry.

Part 1-3 are covered in the questionnaires sent out to the enterprises. Part 4 are, in the electronic version of the questionnaire, available as a drop-down list, where the enterprises can choose between approximately 450 product/activity groups. Enterprises not using the electronic version are asked to fill in "Other activities" and specify what this is.

For reference year 2007, the enterprises within the water transportation industry could choose from 9 main activities, as seen in table 2 below.

Table 2 Available products for water transportation enterprises

Variabel	Presentation text
v1703	Gross incomes from pools, freight traffic
v1707	Gross incomes from pools, passenger traffic
v1715	Transports by ferries, lorries
v1716	Transports by ferries, trains
v1719	Passenger transports (including cars)
v1723	Freight transports, interurban traffic
v1727	Freight transports, tramping
v1728	Time-charter
v1731	Towages

3.6 Estimations

Since all enterprises' income tax return forms are made available to Statistics Sweden from the Tax Authority, the total turnover is, at least in principle, based on a census. There exists some non-response but for larger enterprises this information is gathered through official annual reports and for smaller enterprises the turnover (along with other economic variables) is imputed, based on responding enterprises belonging to the same industry and the same size class.

When it comes to turnover by product, the enterprises are divided into model strata based on industry and size class. Within these model strata, estimations are made based on the responding enterprises' distribution.

4. Improvements

After every reference year, the survey is revised in order to find areas in need of improvement, regarding variables, sample, questionnaire design etc. The National Accounts are also involved in this process, since they are the main final user of the results from the survey.

4.1 Variables

As mentioned above, there are 9 different activity/product turnover variables for the water transportation industry. This is approximately the same number as in 2003, when the survey underwent a major revision. However, on the product level these variables has gone through some changes, with some variables being bundled together and other being divided into one or more variables. This has been done so satisfy the demand from the National Accounts, but also to simplify the task for the responding enterprises.

It is important for the quality of the returned questionnaires that the respondents feel familiar with the terminology used in the survey, which is why Statistics Sweden adjusts the variables' presentation text in the questionnaire with regard to the enterprise's sub-industry. Hence, the same variable can have different presentation texts for different enterprises. This is usually more common for the cost variables. For example, the enterprises' definition of Cost of trade goods usually varies from the National Accounts' definition.

4.2 Coordination with other surveys

For total turnover within the water transportation industry, comparisons are made with the VAT statistics as well as the Turnover statistics.

4.3 Questionnaire design

Statistics Sweden has in latter years put more and more focus on the electronic questionnaires, since enterprises has increased their will to respond electronically. The layout of the questionnaire is revised after each reference year, to improve the design if possible. Electronic information gathering also enables the use of some controls as the respondents fill in the questionnaire. For example, enterprises can not return the questionnaire if invalid values are filled in. Some summation controls are also present in the electronic questionnaire. The number of controls in this stage must however not be too many or enterprises might lose their will to return the questionnaire.

5. Results

5.1 Response rate

The questionnaires for reference year 2007 were sent out in September 2008. Enterprises that has not responded on time are reminded via written reminders and finally by telephone. When the data collection was finalised, 92 of the 110 enterprises in the sample had returned the questionnaire, i.e. 84 percent. Weighted after turnover, the corresponding share was higher, 97 percent. For the two strata within water transportation, the response rate was respectively 87 percent and 79 percent. The weighted response rate was somewhat higher, 97 and 92 percent. The response rates in the different strata can be seen in table 3 below.

Table 3 Response rate

Stratum	Number of enterprises in the sample	Number of responses in the sample	Un-weighted response rate	Weighted response rate
61.1	67	58	86,6	97,2
61.2	43	34	79,1	91,8
Total	**110**	**92**	**83,6**	**97,0**

5.2 Turnover

As mentioned earlier, the enterprises are asked to specify the turnover into different type of products. These are then translated into SPIN codes, which is the Swedish version of the European standard – CPA (Classification of Products by Activity). It is obvious that these codes are closely related to the NACE classification, which also can be seen when looking into table 4 and table 5 beneath. A major difference is that enterprise classified within water transportation can have other activities as well. This can be seen in table 4 where almost 19 percent of the turnover come from activities outside the water transportation industry.

Table 4 Turnover in million SEK by SPIN code 2004-2007 (sorted by value 2007)

SPIN	Text	2004	2005	2006	2007
61A0002	Freight transports, interurban traffic	11 044	11 408	15 038	13 570
61A0003	Freight transports, tramping	9 739	11 051	9 372	9 752
61A0005	Time-charter	6 480	8 271	6 922	6 523
61A0001	Passenger transports (including cars)	2 551	2 957	2 610	2 268
61A0004	Transports by ferries, lorries	370	261	249	107
61A0003	Gross incomes from pools, freight traffic	0	0	1	2
61A0006	Towages	0	0	0	2
61A0001	Gross incomes from pools, passenger traffic	0	0	2	1
61A0004	Transports by ferries, trains	104	92	88	0
50-52	*Wholesale and retail trade*	1 280	679	1 023	1 117
55	*Hotels and restaurants*	648	629	653	627
60, 62-64	*Transport (excluding water transportation), storage and communications*	537	663	1 215	878
70-74	*Real estate, renting and business activities*	1 536	3 639	3 192	4 827
01-45, 90-93	Others	0	16	31	6
	Total turnover	**34 525**	**39 773**	**40 476**	**39 835**

Table 5 Turnover (million SEK) by NACE code 2003-2007 (sorted by value 2007)

NACE	Text	2003	2004	2005	2006	2007
61101	Ferry transport	10 559	10 619	11 496	11 892	12 269
61102	Other sea and coastal water transport	22 136	22 915	27 119	27 300	26 255
61200	Inland water transport	699	991	1 159	1 284	1 311
	Total turnover	**33 394**	**34 525**	**39 773**	**40 476**	**39 835**

A link between NACE Rev 1.1 and ISIC Rev 4.0 can be found in Annex 1.

It should also be noted that large differences between the years not necessarily mean real economic changes. In many cases the cause is that enterprises change activity from one year to another. Since Statistics Sweden, through the SBS survey, gets to know the true activity of the enterprises it also means that the SBS is a very important source of code errors in the register. To always improve the Business Register there is a close cooperation between the Business Register Unit and the other units at Statistics Sweden.

6. Conclusions

Regarding turnover, water transportation is a relatively small 2-digit-level industry in Sweden with 40 billion SEK, which is less than one percent of the total turnover.

There is no doubt, however, that all information that can be produced about water transportation is of major importance. Since the revision of the economic statistics in 2003 Statistics Sweden, and most importantly the National Accounts, now have annual statistics about turnover by product for the water transportation industry.

Annex 1 – NACE Rev 1.1

NACE Rev 1.1	ISIC Rev 4.0	
61.1	501	Sea and coastal water transport
61.2	502	Inland water transport