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# **Sector Paper on Water Transport**

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## 1.0 Introduction

This sector paper on Water Transport summarizes international progress and challenges in the measurement on turnover and price change, it also provides an overview of the classification structures.

The main source of information is a survey of Water Transport Services that was sent out to 22 countries during the spring of 2010. Of the 22 contacted countries, 19 answered the survey.

The paper is organized as follows. After the introduction, section 2.0 covers classification issues. Section 3.0 describes turnover measurement issues and practices used in 14 countries. Section 4.0 presents methodological price measurement issues and practices used, and includes a discussion about price measurement issues and challenges.

## 2.0 Classification

The industrial classifications used are the International Standard Industrial Classification (ISIC Rev. 4), the Statistical Classification of Economic Activities in the European Community (NACE Rev.2), the Australian and New Zealand Standard Industrial Classification (ANZSIC06), the North American Industry Classification System (2007 NAICS) and the Singapore Standard Industrial Classification (SSIC 2010). A number of European countries have their own classifications systems that correspond with NACE down to and including the 4 digit class level.

The most commonly used product classification is the European Classification of Products by Activity (CPA 2008). Australia uses their own Input-Output Product Classification (IOPC) and the US uses internal US PPI commodity codes. Some countries also use more detailed classifications and have created their own classes.

### 2.1 Industry classification

ISIC Rev.4 is developed by the UN and is considered the international reference classification of economic activities. Under Section H (Transportation and storage) Division 50 Water transport includes the following groups and classes:

**Table 1: ISIC Rev.4 - Division 50 Water transport**

Group	Class	Description
<b>501</b>		<b>Sea and coastal water transport</b>
	5011	Sea and coastal passenger water transport
	5012	Sea and coastal freight water transport
<b>502</b>		<b>Inland water transport</b>
	5021	Inland passenger water transport
	5022	Inland freight water transport

NACE Rev.2 is a European classification that is derived from ISIC Rev.4. Since the structure of NACE is the same as ISIC, the divisions are very similar. As in ISIC, Division 50 Water transports is found under Section H Transportation and storage. The following groups and classes are included:

**Table 2: NACE Rev.2 – Division 50 Water transport**

Group	Class	Description
<b>50.1</b>	50.10	<b>Sea and coastal passenger water transport</b> Sea and coastal passenger water transport
<b>50.2</b>	50.20	<b>Sea and coastal freight water transport</b> Sea and coastal freight water transport
<b>50.3</b>	50.30	<b>Inland passenger water transport</b> Inland passenger water transport
<b>50.4</b>	50.40	<b>Inland freight water transport</b> Inland freight water transport

## 2.2 Product Classification

Even though no country has stated that they use the Central Product Classification, CPC Ver.2, it is the international reference classification of products and is therefore described here. The CPC does not have a specific division for water transport services; these services are instead included in two different divisions, *Division 64 Passenger transport services* and *Division 65 Freight transport services*. Division 64 includes a group called *642 Long-distance transport services of passengers* that includes the class *6423 Long-distance water transport services of passengers*. Division 65 includes a group called *652 Water transport services of freight* that includes the classes *6521 Coastal and transoceanic water transport services of freight* and *6522 Inland water transport services of freight*. All classes also contain a number of detailed subclasses where the transports are divided by distance, mode, and type of ship.

CPA 2008 is the European version of the CPC Ver.2. For water transport services the CPA differs rather much from the CPC and is instead more connected to ISIC and NACE. Division 50 Water transport has the same breakdown as NACE Division 50 which means that includes the following classes:

<i>50.10</i>	<i>Sea and coastal passenger water transport services</i>
<i>50.20</i>	<i>Sea and coastal freight water transport services</i>
<i>50.30</i>	<i>Inland passenger water transport services</i>
<i>50.40</i>	<i>Inland freight water transport services</i>

These classes also include a number of detailed subclasses.

As mentioned above some countries use more detailed classifications. The transports are then divided by type of cargo (such as dry bulk, oil products, chemicals etc.), by mode (liner, time charter, tramp) by type of ship (ro-ro, ferries, tankers etc.), by ship size, and by geographical region.

### 3.0 Turnover Statistics

18 of the 19 countries that answered the survey filled in the turnover part in the questionnaire. All of those 18 countries were collecting turnover data for water transport. The main findings are presented below.

#### **Question 1: Does your office collect turnover data for water transport activities?**

Regarding sub-sectors of water transport, 13 out of 18 countries are providing turnover information at a more detailed level. The countries not providing this information are Australia, Czech Republic, France, Ireland and Israel. The confidentiality problem is the main reason for not providing information regarding sub-sectors.

#### **Question 2: Do you provide turnover information for sub-sectors of water transport services?**

When it comes to the level of detail it differs from country to country. Some countries provide industry turnover at 3-digit level (for example UK) and some countries provide information at the finest level (5-digit or 6-digit level depending on the classification) such as USA and Norway.

Some countries provide a more detailed information concerning commodity level comparing to industry level (Spain) and some countries provide more detailed information at the industry level (Norway, Sweden).

#### **Question 3: What is your data source?**

There are many different data sources to collect turnover information for water transport. The sources also differ within countries between the short-term statistics and the structural business statistics.

Most countries conduct a survey and in many cases in combination with administrative data. Four countries (Canada, USA, Finland and Mexico) provide turnover information based on a census in some way.

The administrative data used are tax data (most often annual) and VAT data (most often monthly or quarterly) but some countries also use data from other sources such as customs and ports. In the case of cut-off, model based estimations are sometimes used for smaller enterprises.

**Table 3: Data sources for turnover statistics**

Data source/-s	No. of countries
Survey / administrative data	7
Survey	6
Census / administrative data	2
Census / survey	1
Census	1
Administrative data	1

In the case of Sweden the annual total turnover is based on tax data (except for the very largest enterprises which are surveyed directly without the involvement of tax data, 5 enterprises 2008). In theory this information should exist for all enterprises, but “even” the Tax Agency has some non-response. For these non-responding enterprises imputations are made based on averages within the industry and size class. To obtain information regarding turnover by product a sample (probability-proportional-to-size) is drawn and a questionnaire is sent out (60/1200 enterprises). For the short-term statistics, VAT is used for the smaller enterprises. However, a questionnaire is sent out every month to the larger enterprises.

In Ireland, no administrative data are used. In this case, surveys are conducted both for short-term statistics and structural statistics.

**Question 4: How do you assure that companies classified as water transport really offer those services and do not belong to another sector?**

When it comes to the accuracy of the activity code, the countries deal with this problem in various ways. Some countries regularly conduct surveys, where the only purpose is to collect the correct activity code. This is done mainly for larger enterprises. Other countries ask the enterprises to adjust the code when the regular surveys are conducted. Many statistical offices discover errors in the classification when asking for turnover by product, in cases where an enterprise mainly produces services belonging to another sector. If this occurs, the code is corrected after contacting the enterprise. Some countries also responded that they coordinate this kind of classification work with other branches in their respective offices.

**Question 5: How often is turnover information collected?**

Most countries collect turnover information annually, at least regarding structural statistics. Beside the annual collection, seven countries collect information on a monthly basis, one country bimonthly and four countries on a quarterly basis. Thus, 11 out of the 18 responding countries collect the information on a short-term basis.

**Question 6: Do you publish the results?**

All responding countries publish their results, most commonly on the countries' respective websites, for example in databases, publications, bulletins or yearbooks.

**Question 7: What have been the main challenges in developing the turnover statistics for water transport activities?**

A number of different challenges were presented regarding turnover statistics for water transport activities. Several countries mentioned response burden and response rates. Other challenges included user demands, costs, sample size and difference in sources (e.g. tax data versus other data).

### **3.1 Main issues with turnover measurement**

In many countries water transports only stand for a small share of the total GDP. One problem in measuring turnover in water transports is when enterprises are shipping goods or passengers crossing borders between two countries. In theory, the turnover is to be measured only within the country borders. Another problem related to this is ownership. Many enterprises occupied in a country are registered in another country, thus make it difficult to measure turnover in a proper way.

The usage of VAT data can cause problems in the water transport sector since these enterprises can obey special tax rules.

Many countries also have problems with complex enterprises in this sector. The existence of outsourcing can further complicate the measurements.

## 4.0 Service Producer Price Index (SPPI)

14 of the 19 countries that answered the survey produce an SPPI for Water Transport. Two countries (Poland and the UK) state that they cover all water transport activities while as all others omit some parts of the market. Most countries only include sea and coastal transports and exclude inland transports. The reason for this is that inland transport in most countries has relatively small weight. Most countries also exclude transport of passengers and only measure prices for freight transports.

The most commonly used pricing method is Direct use of prices for repeated services/Contract pricing. Other methods used are Model pricing and Unit values.

**Direct use of direct use of prices for repeated services** is a method that is appropriate if the services are well-specified and repeated. A particular case of the method is **Contract pricing** and this is the method that is most commonly used for Water transports. Almost all countries use this method for liner shipping such as Ferry transports and Ro-Ro shipping.

The Netherlands use **Model pricing**. Sweden, Norway, France and Germany use market data (estimates from shipbrokers and international indices) to measure the price trends on the tramp market. The usage of market information such as shipbroker data could also be considered as Model pricing as the brokers supply an estimate of what a certain transport *would* cost *if* it was carried out. The difference compared to the “normal” usage of Model pricing is that the estimate is made by someone else than the service provider. International indices are compiled from data supplied by panels of shipbrokers, ship-owners and charterers and could also be considered as a form of model prices.

Poland is the only country that uses the **Unit Value** method.

The most common way of handling quality changes is the **Overlapping method**, 8 of 14 countries use this method. The second most common is **Comparable replacement** that is used by 5 countries. Other used methods are **Quantity adjustments**, and **Adjustments based on expert judgements**. UK uses a method that they call “w spec change” which revises the base price but does not reflect a price change in the index. This seems to be equivalent to the method “linked to show no price change”.

The majority of the countries collect prices quarterly. Czech Republic, Germany and Poland collect prices monthly and USA and Norway collect some prices quarterly and some monthly. Sweden collects tramp market prices weekly. Most prices are collected via own data collection directly from the service producers but some countries also use other sources. Australia uses data from other government agencies. Germany and Norway collect data from the Internet. As already mentioned some countries also collect price data from shipbrokers.

The sources for weight data varies between countries. Most countries use data from annual surveys like Structural Business Surveys, Annual Sectorial Surveys and Annual Survey of Services for Transport Services. In some countries weight data is collect in the SPPI survey. Australia and The Netherlands use National Account data (Netherlands combine this with data collected in the SPPI survey). Germany estimate turnover by multiplying price data (SPPI) and transportation performance (tonne km) from transport statistics.

How to select respondents also vary between countries. Some countries solely use their Business Registers; some companies combine the Business Register with data from other sources like institutes and trade associations. The sampling methods also vary, some use PPS-sampling, some use cut-off sampling, and some use “purposive sampling”. Singapore tries to cover all shipping companies.

The sample sizes vary considerably between countries. The countries with largest samples are Germany (600 price quotations from 30 respondents), and USA (560 items, number of respondents confidential), followed by Norway and Singapore that both collect 300 price quotations per period. The smallest sample is found in Poland with only 14 price quotations. A number of countries collect between 30 and 70 price quotations per period. The Netherlands collect 129 price quotations from 27 respondents.

All countries except Singapore (due to data confidentiality issues) publish the results, both on their websites and in Statistical Bulletins.

#### **4.1 Main issues with price measurement**

The main problem when measuring price changes in the water transport industry is how to capture the price fluctuations on the tramp market. Tramp shipping means that the ship operates on a spot market and does not have a fixed schedule or published ports of call. Due to the nature of the market it is very hard to find a service with constant quality that is performed in every period. Many countries therefore choose not to include tramp shipping in their SPPI's. When services are unique the preferred method is Model pricing and the countries that do include tramp shipping also use Model Pricing or some similar method (shipbroker estimates and international indices).

As in other transport industries another issue is bundling of services. Many transports are sold as a "package" together with other services like freight forwarding and storage and it can be hard to identify a price for the actual transport.

Other issues are difficulties to find suitable sampling frames and weighting data. One reason is that the turnover data not always is detailed enough.

## References:

**ISIC Rev.4 accessed at:**

<http://unstats.un.org/unsd/cr/registry/isic-4.asp>

**NACE Rev.2 accessed at:**

<http://circa.europa.eu/irc/dsis/nacepacon/info/data/en/NACE%20Rev%202%20structure%20+%20explanatory%20notes%20-%20EN.pdf>

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**2007 NAICS accessed at:**

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**CPA 2008 accessed at:**

<http://circa.europa.eu/irc/dsis/nacepacon/info/data/en/CPA%202008%20structure%20and%20explanatory%20notes%20-%20EN.pdf>

## Appendix

**Table A1: Summary of progress reports**

Category	Number of countries	Percent
<b>Countries responding Turnover part</b>	<b>18</b>	<b>100</b>
<b>Turnover statistics produced</b>	<b>18</b>	<b>100</b>
ISIC 5011 Sea and coastal passenger water transport	13	72
ISIC 5012 Sea and coastal freight water transport	13	72
ISIC 5021 Inland passenger water transport	13	72
ISIC 5012 Inland freight water transport	13	72
<b>Countries responding SPPI part</b>	<b>19</b>	<b>100</b>
<b>SPPI produced</b>	<b>14</b>	<b>74</b>
ISIC 5011 Sea and coastal passenger water transport	6	32
ISIC 5012 Sea and coastal freight water transport	14	74
ISIC 5021 Inland passenger water transport	3	16
ISIC 5012 Inland freight water transport	5	26