

PASSENGER SHIPPING: OUT OF THE BLUE

*The economic impact of passenger shipping on
inland waterways in the Netherlands in 2010*

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Preface

This report is the product of an internship at the CBRB (Central Bureau for Rhine- and inland shipping). The research was carried out as my graduation thesis for the masters programme Urban, Port and Transport Economics, which is a specialization of the study Economics & Business at the Erasmus University Rotterdam.

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Hans Plaisier

Rotterdam, November 2011

Executive Summary

Background

The sightseeing tours on the canals in Amsterdam are the best-known example of passenger shipping in the Netherlands. In many other cities and nature areas such tours are also offered. A different segment is the hotel cruises, the multi-day trips along European waterways. All these segments together form the passenger shipping sector. The ferry services also belong to passenger shipping, but they are outside the scope of this research as they provide in a whole different need and have been researched already in the past couple of years (Oostinjen, 2004; Den Hartogh, 2010). There is no data at all about the total size of the sector and its interlinkages with other sectors. Knowing the economic and other key figures is necessary in order to implement effective and efficient policy measures towards the sector. The objective of the research

is to find both direct and indirect economic impact and to come up with a qualitative analysis of the sector.

Economic Impact

It was found that there are 303 ships without the possibility of overnight stays in the Netherlands. Furthermore there are 42 river cruise ships and 397 ships that belong to the ‘charter sailing’. Charter sailing is also divided in day ships and hotel ships. In charter sailing there are 56 day ships and 341 hotel ships. This indicates that the total passenger fleet in the Netherlands consists of 742 ships. The direct economic impact of cruises without overnight stays was researched through conducting a questionnaire.

The table below shows the total economic impact of passenger shipping on inland waterways.

Economic Impact Passenger Shipping				
Economic Impact	Day trips	Hotel Cruises	Charter Sailing	Total
Turnover	€ 98.639.698,40	€ 84.000.000,00	€ 53.403.500,00	€ 236.043.198,40
Backward Effects	€ 61.156.613,01	€ 52.080.000,00	€ 10.680.700,00	€ 123.917.313,01
Added Value	€ 37.483.085,39	€ 31.920.000,00	€ 42.722.800,00	€ 112.125.885,39
Forward Effects	€ 28.605.512,54	€ 34.432.750,00	€ 33.303.600,00	€ 96.341.862,54
Total Economic Impact	€ 127.245.210,94	€ 118.432.750,00	€ 86.707.100,00	€ 332.385.060,94
Employment		TO cruises without overnight stays derived from questionnaire		
Day Trips	1173 FTE	TO hotel cruises estimated based on information from sector		
Charter Sailing	1029 FTE	TO and forward effects charter sailing based on BBZ research		
Total Employment	2814 FTE	FE cruises without overnight stays based on CBS data		
		FE hotel cruises derived from questionnaire		
		BE are based on CBS data		
		E cruises without overnight stays based on questionnaire		
		E charter sailing based on BBZ research		

Table 1 Economic Impact Passenger Shipping *Source: Own elaboration; figures 2010*

The **flexibility** of services offered by the sector is a strength but also causes problems. It is a strength because customers can be served at different places. However, flexibility of the services makes competition fierce, as all ships can sail everywhere, it is hard to ‘capture’ a part of the market. Secondly, with the upcoming sewerage regulations flexibility will cause problems, as facilities to discharge wastewater are not flexible and also hardly available. In the long run **innovation** and investments are of the utmost importance for every sector, so passenger shipping companies should focus more on innovation, to secure the future of the sector. The most important recommendation for the sector is to try to **unite** itself more, in order to attract more attention from policy makers and to be able to influence decision-making, although it is acknowledged that it is quite hard to tackle the free-riding problem. There is not a lot of contact with **governments** on national and supranational level. Most times individual companies have contacts with local authorities, but as the sewerage example indicates, also here contact is not always experienced as positive. It is striking that the sector is often ignored or overlooked.

To summarize shipping on inland waterways deserves more attention from policy makers. It might not be a key sector for the Dutch economy, but looking to the sector as a part of inland shipping shows that it is more important than one would think looking to the attention the sector gets in the media and from policy makers.

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1. Introduction

1.1 Background

The passenger shipping sector in inland waterways in the Netherlands has quite some differentiated forms. The best known are sightseeing tours and hotel cruises. There are also many companies providing events and parties on ships. In many cases, companies that offer sightseeing tours also offer the opportunity for parties and events. Sightseeing tours on the canals in Amsterdam are the best-known example of passenger shipping in the Netherlands are the. In many other cities and nature areas such tours are also offered. Hotel cruises, the multi-day trips along European waterways, are a different segment. All these segments together form the passenger shipping sector. The ferry services also belong to passenger shipping, but they are outside the scope of this research as they provide in a whole different need and have been

researched already in the past couple of years (Oostinjen, 2004; Den Hartogh, 2010).

1.2 Relevance

The Netherlands is a water-rich country. So, it is no surprise that recreation on water is quite important in the Netherlands. For example, many people are taking a tour on water every year and many parties are given on party ships. Yachting is also quite popular in the Netherlands. In Amsterdam only, 2.8 million people took a canal tour in 2010, in 2007 this was even 3.2 million people. (Amsterdam in cijfers, 2010), this makes the canal tour the second touristic attraction in the Netherlands, after 'De Efteling' (NBTC, 2010) and by far the biggest attraction in Amsterdam (Amsterdam in cijfers, 2010). It is quite questionable whether as many tourists would come to Amsterdam if there was not the possibility of taking a roundtrip. Also in many other cities and nature areas tours are offered, however on a smaller scale than in Amsterdam. River cruises are growing at a rapid speed at the moment (Hader & Hader, 2011) and also charter sailing is quite popular in the Netherlands. This indicates the importance of the sector in the Netherlands. In academic literature passenger shipping on inland waterways is almost absent, not a single study on passenger shipping on inland waterways could be found. This indicates that it is quite relevant to research this sector.

1.3 Problem Analysis

There is no data at all about the total size of the sector and its interlinkages with other sectors. This lack of relevant data makes it impossible for the 'Centraal Bureau voor de Rijn- en Binnenvaart' (CBRB), the association for employers and entrepreneurs in inland shipping in the Netherlands, to represent its members optimally. Knowing the econom-

ic and other key figures is necessary in order to implement effective and efficient policy measures towards the sector.

This leads to the following research question:

What is the economic importance of passenger shipping on inland waterways in the Netherlands and what policies should the different actors implement in relation to this sector in order to enable the sector to function optimally?

This research question will be answered by using the following sub questions:

1. *How is passenger shipping defined?*
2. *What are the relevant actors in passenger shipping?*
3. *How can economic impact be quantified?*
4. *What is the current economic impact of passenger transport?*
5. *What policies should be implemented in relation to passenger shipping so that it can function optimally?*

1.4 Outline of the Thesis

Chapter two will define passenger shipping and will distinguish the relevant actors. Furthermore it will deal with different methods that can be used to quantify economic impact. Sub questions 1, 2 and 3 are discussed in this chapter. The third chapter will deal with the chosen methods and in chapter 4 the results are discussed. Here the fourth sub question will be answered. The fifth chapter provides a qualitative analysis of the sector and deals with sub question 5. Chapter 6 deals with the general conclusions and answers the main research question.

2. Conceptual Framework

2.1 Introduction

This chapter will deal with the theoretical foundation of this thesis. In the theoretical framework will be explained how other academic writers have dealt with the same kind of topic. Also economic reasoning will be applied to explain economic methods with which one can answer the sub questions and ultimately the main research question.

2.2 Segments

Passenger shipping is a sector that is active in a wide variety of fields. The CBRB distinguishes three segments:

- Passenger shipping without overnight stays: consisting of two sub segments:
 - Parties & Events
 - Day trip companies

As there is not a real adequate English translation for the Dutch word ‘dagpassagiersvaart’, the remainder of this thesis the segment of passenger shipping without overnight stays will be called the Day trip segment.

- Hotel cruises: where it comes to extended tours on waterways with overnight stays on board. There are again two sub segments:
 - Regular river cruises
 - Cruises intended for diseased and disabled people

This research will not make a distinction between those two types of ships, as the second segment is too small to research separately. In this thesis ‘hotel ships’ and ‘river cruise ships’ are treated as synonyms, just like ‘hotel cruises’ and ‘river cruises’.

- Ferries: Ferry services consist of two sub segments:
 - In most cases aimed to transport people from one bank of a river or other waterway to another bank.
 - In the Netherlands there are also ferries that transport people from and to islands, the so-called ‘zoute veren’. Literally translated

ed this means ‘salt ferries’, referring to the fact that they operate on salt water.

Ferries will be left out of the analysis, as research into ferries have been carried out already two times in the last couple of years (Oostinjen, 2004; Den Hartogh, 2010).

- Charter sailing: Consisting of old sailing ships and some old motorized ships, again two sub segments:
 - Day trips: Trips that begin and end on the same da
 - Cruises: Trips with at least one overnight stay. Cruises form the majority of the activities of charter sailing.

Charter sailing is not part of the actual research, but to the association for charter sailing (BBZ), an enquiry was made for relevant figures about their fleet, so figures about charter sailing are also discussed in this thesis. There is not a good translation for the Dutch term ‘beroepschartervaart’, but in this thesis ‘charter sailing’ will be used.

All segments will be discussed in more depth in the following sections. Important to note is that this research will be limited to passenger shipping on the Dutch waterways.

2.2.1 Day Trips

Short tours & day trips

There is, for as far as I know, not an English equivalent for the Dutch term ‘rondvaart’. A ‘rondvaart’ can be described as follows: A short tour, mainly intended for sightseeing. This sightseeing can be quite differentiated. There are examples where cities with a lot of canals or other

waterways, like Amsterdam, offer such tours, but there are also tours in nature reserves or in ports. There are also somewhat longer tours that can be best described as day tours. Those are tours that, for example, depart from Utrecht, sail to Amsterdam and back again. Important to note is that in this category there are no overnight stays, so departure and arrival are on the same day. Another important note is that short tours and day trips are open to the public. This means that everyone can just by a ticket, without chartering the whole ship.

In this research the so-called ‘open’ ships are left out of the analysis. The term open simply refers to the fact that those boats do not have a roof. These ships are left out of the analysis because supply is fragmented and it is often not clear whether they are commercially exploited or just used personally. There are of course regulations to determine what commercial exploitation is, but those rules are often offended, making it impossible to differentiate between commercial and personal usage.

Parties & Events

In fact ships that are intended for parties and events are competitors of locations on the shore. Their unique selling point is that the location is sailing. Many shipping companies combine day trips and tours with parties and events. Sometimes they use the same ships for both; sometimes they have different ships for both activities. Party ships can be found on every waterway in the Netherlands and provide in a location for all different sorts of parties and events. One can think of weddings, product presentations, company parties and even house parties. The most important distinction with the day trips is that in the party event segment in almost all cases a ship is chartered and only available for invited guests.

2.2.2 River Cruises

River cruises on inland waterways are widespread throughout Europe. According to IG RiverCruise¹ the cruises mainly take place between Amsterdam and the Black sea, on the Rhine, Moselle, Saar and Danube. But there are also river cruises on the Seine, Rhone, Po and some other waterways. The river cruise sector is growing faster than ever (Hader & Hader, 2011) A typical river cruise ship can take between 100 and 150 passengers. With regard to the Netherlands one can distinguish three different types of cruises (ZKA Consultants & Planners, 2010):

1. Long Cruises to distant destinations. Those cruises last about 15 days and are for example heading to Budapest or Basel. Place of departure and arrival is typically Amsterdam.
2. Cruises along German rivers. This concerns somewhat shorter cruises from 7 to 9 days. Departure and arrival are often in Arnhem or Nijmegen, cities close to the German border.
3. Short cruises within the Netherlands and Belgium. Those cruises last mostly 4 to 7 days and are intended to visit the typical Dutch attractions.

Discussions with representatives of the river cruise industry revealed some specific characteristics in the case of river cruises. Firstly almost all river cruises are international, this means that river cruises from the Netherlands often sail to Germany, Belgium, or even further away. The other way around, many river cruises from abroad are partly sailing in the Netherlands. Secondly, River cruise companies are often also internationally oriented. This means that they offer cruises from a number of destinations, also outside their home country. Often they also hire personnel from abroad, which makes it almost impossible to determine the

¹ IG Rivercruise is the European organisation for river cruise companies; www.igrivercruise.com

economic importance for the Netherlands, with respect to turnover and employment. Thirdly, many ships are registered in Switzerland, but sail in the Netherlands. This makes it hard to make realistic approximations about the actual size of the fleet sailing in the Netherlands. Fourthly, there are some mixtures between shipping companies and tour operators. Because of this there is a chance of double counts in, for example, number of ships or the number of passengers. This is why a different approach was needed to estimate the direct economic impact of river cruises, which is explained in chapter three. The table below shows the total western European hotel cruise fleet, as presented by Hader & Hader (2011).

European Union River Cruise Ships	
Switzerland	53
Netherlands	42
Germany	39
Malta	34
France	28
Bulgaria	5
Portugal	4
Romania	3
Sweden	3
Austria	1
Belgium	1
Czech Republic	1
Great Britain	1
Poland	1
Total fleet	216

Table 2.1 European Union River Cruise Ships *Source: Hader & Hader (2011); Figures 2010*

The research of Hader & Hader seems quite reliable, as they derive their results from multiple sources, including shipyards and all river cruise companies. Furthermore all ships are presented with a lot of details, like owner, charterer, shipyard and year of build, which enlarges the reliability of the research.

2.2.3 Ferry Services

According to the Merriam-Webster dictionary a ferry is ‘*a place where persons or things are carried across a body of water (as a river) in a boat*’². This definition makes clear what the main goal of a ferry service is: The transferring of people or things from one bank of a river to the other bank. There are also other forms of ferry services, where the ferry acts as an operator of public transport by, for example, running a service between different places along the same river. Ferry services are excluded from the scope of this research, because research into ferries has been done several times over the past years and ferry services provide in a different need than the other segments in passenger shipping. The ferry services are mainly intended for mobility purposes, while in other parts of the passenger shipping this is not the case.

2.2.4 Charter Sailing

The so-called charter sailing is a somewhat different sector. It consists mainly of old sailing ships, formerly used for cargo, that are restored into ships sailing with passengers. Recently also older motorized freight ships are being made suitable for passenger shipping. The term charter sailing simply refers to the traditional colour of those ships. Other ships in the sector are sometimes referred to as the ‘white fleet’, for the same reason. On average the ships of charter sailing are somewhat smaller than ships that are built for passenger sailing. The ships of charter sailing have typically 20-25 passengers (BBZ, 2011). Typically this business consists of companies that exploit one ship. Figures about this sector are derived from the ‘Vereniging voor Beroepschartervaart (BBZ)’. In the BBZ research, also seagoing ships were taken into account. For those ships are not in the scope of this research, the results from BBZ were edited, where the assumption was made that the turnover was, on average, the same for both seagoing and inland waterway of ships. Leaving out those ships leave a number of 397 ships. BBZ derived the

² www.merriam-webster.com

number of ships from the Schependatabank, which present an overview of all charter ships sailing under the Dutch flag. The BBZ was founded in 1979 and aims to promote the interests of its members to ensure the best possible conditions for conducting their business in national and international waters. In addition the BBZ seeks to improve the nautical–technical circumstances under which the sector has to operate. Important to note is that also in this sector there is a distinction between day ships and hotel ships.

2.2.5 Total Fleet

It is quite amazing that there seems to be no organisation that can provide a reliable insight into the total size of the sector. The ‘Inspectie Verkeer en Waterstaat’ (IVW), the organisation that grants certificates to all ships in the Netherlands cannot and also the ‘Internationale Vereniging Rijnschepenregister’ (IVR), an organisation that keeps a register of all ships in Western Europe cannot provide a complete and reliable list. In the case of this research there were two inquiries to IVW, which resulted in two totally different lists with two totally different numbers of ships. One of the two IVW-lists indicates that almost half of the ships have no valid certificate. This indicates that IVW has at least an administrative problem. This is confirmed by shipping companies that are sometimes faced with administrative mistakes indicating that their certificates are not valid anymore, while this is not correct. This explains at least partly the high number of ships with invalid certificates. The question whether there are indeed many ships without certificates remain unanswered. The list of IVR is again totally different, however the number of ships is close to one of the IVW lists. In the overview of IVR however, the categories of the ships are obviously mixed up.

In the end it is most reasonable to use one of the overviews of IVW as this seems, after some research, the most reliable one. However, also

this overview can be disputed. There are, for example, ships missing of which do have a valid certificate. On the other hand, there are ships in the list that do belong to the so-called ‘charter sailing’, which leads to double counts, as the number of ships of charter sailing is already derived from BBZ figures. It is assumed that these ‘extra’ ships approximately equal the ‘missing’ ships, leaving a number of 303 ships without overnight stay facilities. This is taken as the total fleet. In reality it can easily be the case that there are somewhat more ships, or somewhat less. This number of 303 ships is however the best indicator that is to be found. The number of river cruise ships is derived from a research of Hader & Hader (2011). There are, according to this overview, 42 river cruise ships sailing under the Dutch flag. This number is not by definition the number of ships that is sailing in the Netherlands; as river cruises have an international character. Many of the ships are registered in Switzerland and Malta, because of the friendly tax climate for this particular sector in those countries. In total 87 ships are registered in those countries, while it is not logic to assume that the market for river cruises in those small countries is that huge. The number of ships of charter sailing is derived from figures of the BBZ.

An overview of the number and type of ships can be found in the table below.

Total Passenger Fleet Netherlands	
Regular Passenger Fleet	
Hotel ships	42
Day ships	303
Total	345
Charter Sailing	
Hotel ships	341
Day ships	56
Total	397
Overall total	742

Table 2.2 Total Passenger Fleet *Source: IVW, BBZ (2011) and Hader & Hader (2011), edited; figures 2010*

It should be noted again that there might be some double counting, as the list from IVW also contains some ships that belong to charter sailing. Again, it is the assumption that those ships approximately equal missing ships in the IVW overview.

2.2.6 Conclusion

Passenger shipping consists of tour and day trip companies, party & events operators, river cruise companies, ferry services and the ‘charter sailing’. The research will be focused on tour & day trip companies and party & event operators. Charter sailing will be part of the analysis, where figures of the BBZ are used. River cruises will also be part of the analysis, but the research into this segment is quite limited. Ferry services are outside the scope of this research, as they provide in a different need. Furthermore ferry services have been researched recently. The total fleet size was derived from figures of IVW and BBZ, as those seem to be the most reliable approximations of the fleet. The size of the total fleet is 742 ships.

2.3 Relevant Actors

In order to be able to answer sub-question two it should be determined what the relevant actors in passenger shipping are. All identified relevant actors will be introduced shortly.

2.3.1 Shipping Company

The first actor is, of course, the shipping company. Without the shipping companies there is no passenger shipping sector, so they are by definition the most important actor in the sector. Shipping companies in the day trip segment can be roughly divided in three groups. Firstly, there are companies that are only active in short and day tours, the so-called ‘rondvaart’. Secondly, there are companies that only active in parties, events and product presentations. Thirdly, there are companies that combine both activities. The first category of companies is the smallest. Even in Amsterdam, with its famous canal cruises, most of the companies also organise special parties and events.

In the hotel cruise segment there are two kinds of companies. Firstly there are the regular companies that provide river cruises along the European waterways. Secondly, there are specialised companies and ships for diseased and disabled people.

2.3.2 Public Authority

The second actor is the public authority on national, regional and local level. Local authorities, like municipalities, determine the height of port dues and tourist taxes and set regulations about where the ships are allowed to sail. They are also responsible for facilities on the shore like quays, sewerage and parking facilities. In the Netherlands maintenance on waterways and dikes are the responsibility of ‘Rijkswaterstaat’ and the ‘Waterschappen’, two organisations that operate on regional level.

National policy on waterways is the responsibility of the Ministry of Infrastructure and Environment. Also important to mention is the 'Inspectie Verkeer en Waterstaat' (IVW), a governmental organisation that tests whether ships meet the legal requirements and grant certificates.

2.3.3 Organisations Involved in Passenger Shipping

The different organisations that represent passenger shipping are the third relevant actor. One can think of the CBRB, but there are a number of other organisations that represent the interests of certain segments of passenger shipping or are only active in certain cities. For example: In Amsterdam there are four passenger shipping associations: Vereniging Amsterdamse Rondvaartbedrijven (VAR), Vereniging van Exploitanten Vaartuigen Amsterdamse Grachten (VEVAG), the Vereniging Klassieke Salonboot Rederijen (VKSR) and the Vereniging Passagiersvaartuigen Amsterdamse Havenwateren (VPAH), which are trying to defend the interests of passenger shipping in the Amsterdam area. The reason that there are three different organisations is that a lot of the companies in Amsterdam are originally family businesses. Some of those families do not want to cooperate with each other because of former frictions between them. Furthermore, their scope differs, as VPAH is focused on the Amsterdam port, while VEVAG and VAR are focused on the canal girdle. The VKSR differentiates itself because of its focus on a particular type of ship, the so-called classic salon ship.

2.3.4 Customers

The customers are the fourth actor active in passenger shipping. There are different types of customers in the sector. Firstly, there are the individual consumers that buy a ticket for a short tour, a day tour or a river cruise. Secondly, there are families, companies or other groups who charter a ship for their event. Thirdly there are tour operators that charter a ship, or part of a ship, mainly in the case of river cruises.

2.4 Economic Impact

In this section the economic impact will and some basic methods for determining the economic impact of a sector will be discussed. A distinction can be made between direct and indirect economic importance. The direct economic importance will be explained first, after that; the indirect importance will be discussed.

2.4.1 Direct Economic Impact

The economic impact of a sector can be measured in monetary terms or it can be described as a fraction of the Gross Domestic Product. Obviously, one can only draw conclusions about the importance of a sector if one is measuring the relative importance of a sector. Only stating, for example, the total turnover of a sector doesn't say anything about the importance of the sector. One has to relate the economic impact to the GDP or to a similar sector to be able to state something about the economic importance of a sector. One can also measure economic importance in terms of employment or other economic indicators. From an academic perspective it is not too complicated to collect and analyze the data. In the Netherlands a lot of data can be derived from the Central Bureau for Statistics (CBS). However, it is not always possible to derive data from the CBS, because they often use sectors that are not compatible with the research at hand. For example, the CBS does not distinguish passenger shipping. Passenger shipping is a part of tourism and recreation and a part of inland shipping. It is quite well possible to collect the data via a survey in the sector. One can just count the results of the survey and aggregate those to the total sector. The only problem that has to be solved is that in order to do this in a reliable way, one must have a realistic approximation of the total size of the sector. There are often different ways to create insight in the size of a sector. There are industry associations who have a realistic image of the size of 'their'

sector. One can also use data from the chamber of commerce, where all companies in the Netherlands are registered. In other cases one needs some kind of permit to be active in a sector. In these cases it is easy to see the size of a sector, by simply counting the number of permits.

2.4.2 Indirect Economic Impact

All sectors are related to other sectors. Some sectors do even have a key role for other sectors; if they would not exist other sectors could not function. A simple example: If there were no oil mines, oil refineries cannot function. The indirect economic impact of a sector can best be defined as the magnitude of the induced effects, described in monetary terms or in terms of employment. One can distinguish backward, sideward and forward linkages. Some economists state that sideward effects are in fact the same as forward effects (Hirschmann, 1958). In this research we will only use the backward and forward linkages, with sideward linkages included in the forward linkages.

From an economic and policy perspective forward linkages are more relevant than backward linkages. Every sector has backward linkages as every sector receives supplies from other sectors. As a matter of fact those backward linkages equal the total costs of a company. Depending on the scope of the research the total cost should be reduced by the costs that are made outside the country under research. In the case that the scope of the research is a whole country those costs made outside the region under research, equal the costs resulting from import. Only in the case of sectors with strong backward linkages where this backwardly linked sector depends on the demand of only one sector, one can state that when this sector is disappearing, the other will disappear too. Furthermore, most sectors do provide in a need that will be taken care of anyway. So, if one sector will not exist anymore, another sector will flourish, because they take over the demand of the other sector. For

example: If the hotel sector would disappear, other holiday providers will flourish. As they will have more or less the same suppliers, it is not really relevant from a policy perspective which sector is taking care of the demand.

To summarize, backward linkages are bounded by the size of a sector and are in terms of policy only important regarding sectors that depend on the demand of only one sector. Passenger shipping is not expected to be such a large sector that other sectors will be endangered when passenger shipping would not exist anymore. This could only be the case for some highly specialised shipbuilders. However, the observation those backward linkages are not that important from a policy perspective, does not mean that backward effects do not exist or are not at all important.

Forward linkages, on the other hand, are not limited by the size of the sector and are thus much more relevant from both a policy and an economic perspective. For example, the energy supply sector is not that big in direct economic terms, but without energy supply no other sector can function. One can thus state that that the forward effects of energy supply are almost infinite. Of course this is an extreme example, but one can think of multiple examples of sectors that are more or less dependent on the output of other sectors. In the case of the passenger traffic one can think of the tourism and hospitality sector in Amsterdam. It is very likely that fewer tourists will enter the city if there are no tours offered anymore. Probably to a lesser extent this also is the case for tourism and the hospitality sector in cities where the users of hotel cruises go ashore.

There are different ways to determine the magnitude of backward and forward linkages. The most well-known is using the input-output table (Leontief, 1986). Wassily Leontief developed this method. In fact the

input-output table is nothing more than a matrix of all sectors of an economy against all sectors of the economy. In every cell one finds the intermediate expenses between the sectors. It is very hard, if not impossible, to create an input-output table by yourself, as it is very time and resource consuming. A problem of using input-output models arises here; one can only use them if the sector at hand is present in the available input-output tables. If the researched sector is not present in the input-output tables one can try to find a sector that is similar to the sector under research. One just looks at the total backward and forward linkages of this sector and relates this to the total turnover of the sector. The fraction of the turnover that is related to other sectors is called the multiplier of a sector. This multiplier of the similar sector can be regarded as being the same as that of the sector that is researched. Of course this method cannot be carried out in every case, as there is not always a sector available that is really similar. Furthermore, it brings in a lot of uncertainties, as the height of the multipliers remains an educated guess, as the exact numbers for the sector under research are not available. However, under certain conditions this can be the best method.

In other cases it is also impossible to use a similar sector in the input-output table, as there is just not a similar sector available. In those cases input-output tables become entirely useless. Still there are some methods available in determining backward and forward effects of those sectors. The way to do this is through extensive surveys in the sector under research. Through those surveys the backward effects can become clear by creating insight in the cost structure of the companies. The problem with this method is that there is some subjectivity in it. One aligns costs to certain sectors that are the most logic in your opinion, but this is not necessarily correct. The input-output table on the other hand, describes the whole economy. As a matter of fact, row and column totals must

equal each other, otherwise something went wrong. This is why the input-output table provides an objective view on the economy. This gives much more reliable results than surveys in one sector, as double counts and other mistakes are then easily being made, without a correction system. It is comparable to keeping accounts without knowing that assets and liabilities should equal each other. There is a chance that one is making no mistakes, but if one makes a mistake there is a chance one will not even notice the mistake, as there is no correction mechanism.

Forward effects are a lot more difficult to determine if the input-output tables are not available for use. Some forward effects can be derived in the same way as the backward linkages; through surveys. Those are the effects where the product (output) of one sector is used as input for another sector. In some sectors those forward effects simply equal the turnover, as they produce only half fabricates that are used as input to production by other sectors. In other sectors it is more complicated, because there are also deliveries to end-users. Regarding the somewhat more complicated forms of forward effects this becomes quite problematic. Those forms are, for example, the related spending of people who take a roundtrip, or the question how many tourists would not have come to a certain place if a touristic attraction was not there. In the case of this research, however, this last question might turn out to be quite relevant.

For example, in the case of Amsterdam around 3 million people per year take a canal tour, making it by far the most visited touristic attraction in Amsterdam. This image might be influenced by the fact that the ‘Rijksmuseum’, a huge touristic attraction, has been closed for the past couple of years, due to restoration. But still, the question remains: How many tourists would not come to Amsterdam if there was not the possibility of taking a roundtrip along the world-famous canals? If this

question can be answered, one can draw conclusions about the indirect economic value, based on average expenditures of tourists. One can try to answer this question through surveys among consumers, but then the next problem arises: A lot of tourists book a city trip to more cities, where they do not have complete influence about the destinations that are visited. So, it might be a better option to question tour operators and cruise companies whether they would still visit Amsterdam without the possibilities of a canal tour. From a theoretical point of view it is quite questionable whether tourists would leave Amsterdam aside if there was no canal tour. Amsterdam is attractive because it has a very old city centre with remarkable architecture, a distinct character because of the canal girdle and some well known museums. The canal tour is of course a convenient way of experiencing this city, but is not by definition the *reason* for a visit. On the other hand, at this moment there are only two ways to visit the canal girdle. One can either walk, or take a canal tour by boat. Other forms of transport are not allowed, because the streets along the canals are too small and too vulnerable. So, one can state that it would become impossible for elderly or disabled people to visit the remarkable canal girdle of Amsterdam without the possibility of a canal cruise. The reasoning that people might stay away from places when there is not the possibility for a cruise also holds for places outside Amsterdam. In literature however, this effect is not researched a lot. In fact, only one study could be found where a single product of the total touristic product of a certain place is isolated in order to find its forward effects (Johnson & Moore, 1993). Probably because it is hard, if not impossible, to reliably isolate a single product and quantify its forward effects, although it will be the case in any way that there are forward effects. In the study of Johnson & Moore users are extensively asked about preferences, expenditure and substitution behaviour. However, the researchers still indicate that their results are only an estimation of the total tourism impact. There are a number of studies to the eco-

conomic impact of, for example, a sporting event that took place (Burgan & Mules, 1992; Lee & Taylor, 2005; Crompton et al., 2001). In those cases however, the event is much more easy to isolate, as it took place on a certain time, and was not there before or after. Assuming *ceteris paribus* will lead to the conclusion that the surplus of tourists compared to, for example, the same period a year earlier have to be caused by the event. The same reasoning holds for the effects of temporary closing a touristic attraction, like the Rijksmuseum. However, when an attraction is not closing or coming to the market, it is only possible to isolate a single product of the tourism mix by extensive research among users. If one would carry out such a research for the whole Netherlands regarding passenger shipping this would be so time consuming that it was decided that this is outside the scope of this research.

2.4.3 Conclusion

We can differentiate between direct and indirect economic impact. The direct economic impact can be described as the proportion of the GDP that a certain sector is responsible for. The direct economic impact can be quantified in terms of turnover, employment or other economic indicators. Those indicators sometimes can be found in the CBS data, otherwise surveys in the sector can be used. In the case of this research the direct economic impact will be measured through surveys, as CBS data is not available.

The indirect economic impact of a sector can best be defined as the magnitude of the induced effects, described in monetary terms or in terms of employment. If available one can use input-output tables to analyze the magnitude of backward and forward effects, if not one can use ad hoc multipliers or surveys. The indirect economic impact will be measured using input-output tables. Although the sector is not available, there are some similar sectors. Ad hoc multipliers cannot be used for all

segments, for river cruises however, they are available through NBTC data. For the other segments surveys and interviews will have to shed more light on this issue. The methodology will be discussed in more depth in the next chapter.

2.5 Social Impact

In earlier research commissioned by the CBRB regarding ferry services the instruction was to find the economic and social impact. In analogy, the assignment for the present research was also to find the economic and social impact of passenger shipping in the Netherlands. This paragraph will show why the social impact of passenger shipping is less relevant than the social impact of ferry services. First some methods for determining social impact will be discussed, after that some general conclusions will be drawn.

2.5.1 Introduction

Social value in economic terms is nothing more than the aggregated value that individuals allocate to a certain good that is not priced on the market (Slangen, 2000). Social impact studies in economic context are intended to value products and services that are not directly priced on open markets. Often this applies to public or semi-public goods, but it can also apply to external effects of normal goods and services, as those external effects are often not taken into account on free markets. Two central concepts in the valuation of social impact are the Willingness-To-Pay (WTP) and the Willingness-To-Accept (WTA), where the WTP stands for the willingness to pay for a (positively perceived) change occurring or the prevention of a (negatively perceived) change occurring while the WTA stands for the amount of money people want to be compensated if a (negatively perceived) change is occurring or the amount of money people want to be compensated with if a (positively

perceived) change is not occurring. There are different methods to determine the social impact in monetary terms. They can roughly be divided in direct and indirect methods. Both will be briefly discussed in the following sections.

2.5.2 Indirect Methods

Indirect methods try to find out what the value of a good is for consumers, without directly asking them. Most of those methods are based on the concept of *weak complementarity*. This concept yields that one is searching for the best suiting substitute. The price of this substitute minus the price of the good or service under research is regarded as the social value of this good (Bockstael & McConnell, 1983). A good example of an indirect method is the Travel Cost Method (TCM). Here the WTP or WTA is considered to be equal to the price of best fitting substitute (Brown & Mendelsohn, 1984). For example, if a government is looking at possibilities to invest in a new bridge, then the WTP is equal to the assumed number of users multiplied by the costs of driving to the next possibility of crossing the water. This might be quite problematic in practice, as potential users are hard to distinguish. The other way around is much easier. Assume that a ferry service is taking people from one side of a river to the other. The government subsidizes this ferry service, but the government is considering abolishing the subsidy. When the subsidy is abolished, the ferry service cannot operate anymore. The WTA is assumed to be equal to the amount of money that has to be paid in order to reach the next crossing multiplied by the number of users of the ferry service. The users of a service are of course much more easy to distinguish than the potential users of a considered bridge. In this case, a questionnaire among the users of the ferry service can give quite good results. This was the method used in earlier researches commissioned by the CBRB into ferry services (Oostinjen, 2004; Den Hartogh, 2010).

2.5.3 Direct Methods

By using direct methods one is trying to find the social value by interviewing people and just ask for their WTP or WTA. The most used direct method is the contingent value method (CVM), where ‘contingent’ refers to the subjective and individual nature of the response (Mitchell & Carson, 1989).

There are a few problems with WTP and WTA. Firstly, it is quite hard for consumers to attach a monetary value to a good or service. It is often quite hard to oversee all implications that a change in the current situation has for them. Even if they can interpret all implications, it is still quite hard to value those changes in monetary terms. Secondly, there are incentives to systematically overstate WTA and systematically understate WTP, as paying as little as possible and earning as much as possible fits well in the micro-economic premise of utility maximising individuals (Diamond & Hausman, 1994; Hoevenagel, 1994).

2.5.4 Conclusion

In general, passenger shipping can be seen as a product traded on the free market, as there are numerous firms and numerous clients and there is the possibility for new entrants to enter the market. In economics the premise is that this free market is a perfect market and that the market price is a perfect representation of the willingness to pay of the consumers. In practice, however, the perfect market does not exist. In every market there are externalities and also internal imperfections. With respect to externalities we can state that there are different ways in which they can be internalised into the market. Most of them require government intervention. It is outside the scope of this thesis to discuss them in detail, but in general we can state that it is highly debatable whether revealed or stated preferences will include those externalities in the analysis in a more efficient way than the market does. To summarize: It

can be assumed that market prices are the best possible approximation of the social value of passenger shipping. In this sense it would be irrational to research the social impact of passenger shipping in other ways.

2.6 Optimality

Sub question 5 is stated as follows: *What policies should be implemented in relation to passenger shipping so that it can function optimally?* The question that rises is: What is meant with ‘function optimally’. And, more specific, what yields the concept of optimality in economic terms? Optimality is a well-known economic concept that is often misunderstood. According to the Merriam Webster dictionary ‘optimal’ means: ‘*Most desirable*’³. However, this does not make it much clearer as it remains vague what this most desirable outcome is in the case of passenger shipping. The question what the most desirable outcome is depends highly on the position of the one who answers the question. The most desirable outcome for a consumer can be quite different from the most desirable outcome for the government or an industry. Economic theory suggests that under the conditions of a free market, the outcome will always be optimal. The optimal quantity and price of a product then are found where the marginal costs of an additional unit of production equal the marginal benefits of this unit of production (Baumol, 1965). As all actors maximize their own welfare or utility, the end-result will be an economically efficient (or optimal) equilibrium. Two comments should be noted on this concept of optimality. Firstly, the perfect market does not exist. In real-world markets there are also numerous distortions and imperfections. So, the optimal outcome, which is by definition a steady state, will never be reached. However, one can assume that, by trial-and-error, every market is moving towards its optimum and equilibrium. Secondly, the economic analysis of optimality is limited to economic goals only. Other, for example environmental, goals

³ www.merriam-webster.com

are not part of the analysis (Perman et al., 2003). Also questions about equity are not taken into account. So, it would not always be right to base decisions on economic analysis only, as some possible outcomes might be economically optimal but environmentally or socially unacceptable. In this thesis with the goal to find the economic importance of passenger traffic, the concept of optimality will also be limited to economics. The focus will be on determining what kind of measures should be taken by the relevant actors in order to stimulate the sector towards the economically optimal equilibrium.

2.7 Conclusion

This chapter dealt with the scope of the research and with some conceptual issues regarding the thesis. The scope of the research is the passenger shipping on inland waterways, including tours, river cruises and charters. Ferry services, although they do belong to passenger shipping, will not be taken into account. The size of the total fleet sailing under the Dutch flag is 742 ships.

The distinguished relevant actors are shipping companies, public authorities, different organisations involved in passenger shipping and last but not least the customers. The direct economic impact is defined in terms of some basic economic indicators like total turnover and employment. The indirect economic impact is measured in backward and forward impacts. In the case of this research the direct economic impact will be researched through a survey.

The indirect economic impact will be measured using input-output tables, the sector is not available, but there are some similar sectors. The only exception is river cruises, where ad hoc multipliers will be used.

Furthermore it was concluded that it is irrelevant to research the social impact of passenger traffic separately, as it is assumed that the social impact in economic terms is equal to the economic impact. This assumption is based on the premise that passenger traffic is operating on the free market. The optimal functioning of the sector is defined as creating conditions under which the sector can reach the economically optimal equilibrium.

3. Methodology

3.1 Introduction

In this chapter the methodology used to answer (sub) question 4 will be discussed. Firstly the methods to find the direct economic impact are discussed, after this the methods regarding the indirect economic impact are discussed. The chapter concludes with a table where all relevant methods are summarized.

3.2 Economic Impact

Again the direct and indirect economic impacts are separated in this chapter. First the methodology regarding the direct economic impact will be discussed, after this the methodology regarding the indirect economic impact will be explained.

3.2.1 Direct Economic Impact

The direct economic impact of passenger shipping with and without overnight stays is researched differently. First the methodology to research the direct economic impact of the day trip segment is explained. In order to gain insight into the number of shipping companies and ships in the sector, the data from IVW was used. It was assumed that they have the most accurate data, because every ship that sails under the Dutch flag has to be tested and approved by them. As a double check data from IVR was consulted.

The direct economic impact of passenger shipping in the day trip segment was found by a survey among shipping companies active in this segment. The questionnaire was conducted electronically, through a survey system of the CBRB. The questionnaire was sent to 114 shipping companies. There were questions about the number of ships and their capacity, their turnover and employment. All those questions were asked in order to gain insight in the direct economic impact of passenger shipping in the day trip segment. The questionnaire can be found in annex 1.

With respect to river cruises a different approach was needed. As explained in chapter 2 it is hard to isolate the Dutch turnover of hotel cruises. It seems impossible to make reliable statements on the direct economic impact of this sector without a research of the total Western European market. This is outside the scope of this research, but river cruises are an important segment, which cannot be ignored. This is why it was decided to make a rough estimation of the direct economic impact through information from the sector. The used equation is as follows:

*Direct economic impact of river cruises = Number of departures from the Netherlands * Average trip duration / average number of sailing days per ship * Average turnover per ship*

Where the ‘number of departures from the Netherlands’ is derived from information of port officials of Amsterdam and Nijmegen. Those are the two ports where river cruises in the Netherlands depart from. Occasionally river cruises depart also from other cities, but those figures were not available and are not expected to influence the outcome largely. The ‘average trip duration’ and the ‘average number of sailing days’ are derived from information of companies in the sector and ‘average turnover’ is also derived from a couple of companies in the sector. The equation is then as follows:

*Direct economic impact of river cruises = 1500 * 7 / 225 * 2.25 million euro*

The outcome of this equation is multiplied by 0.8 to correct for the involved uncertainties. This 0.8 is chosen because the outcome of the equation, which is based on many assumptions, seemed quite high. In order to avoid overstating the economic importance it was chosen to make this correction.

3.2.2 Indirect Economic Impact

The backward linkages were researched through creating a multiplier, using the intermediate consumption table of the Central Bureau on Statistics (CBS). The sector passenger shipping is not present in this table, as it is far too small. There are only 66 sectors in the table. As passenger shipping is transport over water, has catering services on board and has a connection with recreation, it can be assumed that the multiplier of passenger shipping will be somewhere between the lowest and the highest multiplier of these sectors.

Regarding forward effects research the research methodology was twofold. Firstly, the forward effects of the day trip segment are researched through the CBS National Accounts input-output table⁴. Just like the backward effects, a combination of the same three sectors was taken. As explained in chapter 2 this will definitely not be the total forward effect, but it is the best approximation that can be found. Forward effects in river cruises are also considered to be substantial, as passengers go ashore in many different cities and are likely to visit local attractions and spent some money in the local hospitality business. The ships sail mainly at night and morning hours. In the early afternoon they reach their destination. Depending on the size of the city they stay for one or two days. In this sense one can argue that the spending of river cruise passengers will approximate the spending of hotel guests. The average spending of hotel guests is researched by the NBTC. In 2009 the average spending per day of hotel guests was 53 euro (NBTC, 2010). In this figure the costs for the hotel are excluded. In reality it is more logic that the expenditure of passengers on hotel ships will be somewhat lower, as on hotel ships food & beverages are mostly included, while in hotels this is not always the case. Furthermore, hotel ships are sailing parts of the day, so passengers on hotel ships have less time to spend money than guests in hotels. Although hotel ships sail mainly during nights and early in the morning, there will be an effect. Another figure of NBTC, about the average spending of people that hire bungalows, suggests an average spending of 35 euro. The difference between the two figures is not explained, but two reasons can be thought of. The first reason is that people in bungalows often have their own kitchen, so they can cook their own meal, which is often cheaper than dining out. Another explanation might be a difference in socio-economic status, represented in the pattern of expenditure on holidays. Other researches of ZKA Consultants and Planners into river cruises also assume a figure between 35 and 50 euro⁵. For this research we assume the average of the two figures of NBTC as the average spending of passengers on hotel ships.

Knowing this figure, one can simply ask port officials about the number of ships entering their port and the average time the ships stayed. One can multiply this by the average number of passengers and by the average spending per person per day. The number of passengers per ship is derived from information of companies within the sector. The outcome is the forward impact of river cruises in the Netherlands. To make this clearer, see the equation below:

$$\textit{Forward Impact of River Cruises} = \textit{Ship Movements} * \textit{Time} * \textit{Passengers} * \textit{Expenditure}$$

Where ‘Ship Movements’ stands for the total number of ships entering a port in 2010, ‘Time’ is the average number of days a ship stays in a port, ‘passengers’ is the average number of passengers on a river cruise ship (assumed to be 125) and ‘spending’ is the average spending per passenger per day. The average spending per passenger is assumed to be 44 euro, being the middle of 53 and 35 euro.

3.3 Policy and Optimality

The data with which sub question 5 can be answered was collected through 14 interviews. In those interviews shipping companies and organisations that defend the interests of passenger shipping were asked for their vision upon their own company and the sector as a whole. They were also asked about their view on recent and upcoming developments, like the economic situation and some specific new regulations with regard to the discharge of wastewater. The results are discussed in chapter 5.

3.4 Conclusion

The direct economic impact of the day trip segment was found by a survey among shipping companies active in passenger shipping. The questionnaire was conducted electronically, through a survey system of the CBRB. The questionnaire was sent to 114 shipping companies. The direct economic impact of river cruises was founded by the following equation:

$$\text{Direct economic impact of river cruises} = 1500 \text{ (Number of departures from the Netherlands)} * 7 \text{ (Average trip duration)} / 225 \text{ (Average number of sailing days per ship)} * 2.25 \text{ million (Average turnover per ship)}$$

Where the ‘number of departures from the Netherlands’ is derived from information of port officials of Amsterdam and Nijmegen. The ‘average trip duration’ and the ‘average number of sailing days’ are derived from information of companies in the sector and ‘average turnover’ is also derived from a couple of companies in the sector. The outcome of this equation is multiplied by 0.8 to correct for the involved uncertainties.

The backward effects are researched through input-output models. The sector passenger shipping is not available here, but there are some similar sectors. The forward impact of the day trip segment was also derived from input output tables. The forward impact of river cruises was researched using the following equation:

$$\text{Forward Impact of River Cruises} = \text{Ship Movements} * \text{Time} * \text{Passengers} (125) * \text{Expenditure (€ 44)}$$

Where ‘Ship Movements’ stands for the total number of ships entering a port in 2010, ‘Time’ is the average number of days a ship stays in a port, ‘passengers’ is the average number of passengers on a river cruise ship and ‘spending’ is the average spending per passenger per day (44 euro). Direct and forward economic impacts of charter sailing are derived from BBZ research.

The research methodology is summarized in the table below.

Research Methodology	Direct	Indirect – backward	Indirect – forward
Day trips	questionnaire shipping companies (multiplied by 1.7)	CBS input/output multiplier 1,62	CBS input / output multiplier 1,32
Hotel Cruises	Equation: 1500 (# trips) x 7 (duration in days) / 225 (# sailing days) x € 2.25 million (turnover) Correction: 0.8	CBS input / output multiplier 1,62	questionnaire port officials ship movements x time in ports x # passengers (125) x Spending of passengers (€ 44)
Charter Sailing	Data BBZ	CBS input / output multiplier 1,20	Data BBZ

Table 3.1 Research Methodology *Source: Own elaboration*

4. Data Analysis

4.1 Introduction

This chapter will show the results of the research. It will answer sub question 4. First the economic impact of the day trip segment will be discussed. After this, the economic impact of river cruises is discussed. Furthermore the results of the charter sailing segment are discussed. Finally, some general conclusions will be drawn and the total results are analyzed shortly.

To wrap up with chapter 3 firstly a short overview of the methodology regarding the different segments of passenger shipping is presented. The direct economic impact of day trips was researched through a questionnaire, backward and forward effects are derived from CBS data. The direct economic impact of river cruises is only a rough estimation,

based on information from two river cruise companies. The forward effects are researched through a questionnaire amongst port officials. Backward effects are again derived from CBS statistics. With respect to charter sailing direct economic impact and forward effects were derived from BBZ research.

4.2 Day Trips

This paragraph shows the results regarding both the direct and indirect economic impact of day trips. First the data collection and some preliminary results are presented. After this the main results about this segment are discussed.

4.2.1 Preliminary Results

It turned out to be quite hard to convince most of the shipping companies of the added value of this research, which made it even harder to receive complete questionnaires. In the end 28 questionnaires were sent in. This is a response of about 30%, as the questionnaire was sent to 114 shipping companies. It was found that there are in total 303 day ships sailing under the Dutch flag. The total number of shipping companies is unknown. The number of ships owned by the respondents is 146, which is about 48% of the total sector.

With the exact number of shipping companies unknown, but at least above hundred, it can be stated that less than 30% of the sector filled in the questionnaire, while they own about half of the ships. This indicates a bias in the non-response, as many smaller companies did not respond, while bigger companies did. There are three possible explanations for this bias:

1. The first is that the questionnaire was sent in the peak season for many shipping companies, the summer. Most of the smaller companies are run by just a few people who, in the peak season, have of course little time for those administrative tasks, as they need all their time for running their business. This is why it is easier for bigger companies to respond to a questionnaire in the summer, as they have an office staff, who are not by definition busier in the summer than they are in other seasons.
2. The second explanation is related to the first. Many small companies just outsource the bookkeeping of their companies. They do not know their number of passengers, or their turnover. This makes it hard, if not impossible, to fill in the questionnaire.
3. The third possible explanation is that smaller companies in this sector often operate in a niche market. They offer, for example, cruises in a particular nature reserve or a small town. In this sense they do not recognise themselves as a part of a bigger sector and do not see the added value of a research into the economic importance of the sector.

A second bias in the non-response is that many of the Amsterdam canal cruise companies have responded to the questionnaire. The companies that have responded own about 67% of the total Amsterdam fleet (81 of about 120 ships). This is somewhat higher than the response of the total sector.

A bias in the non-response can cause problems with the validity of the results. However, it can be reasoned that in the particular case of this research the first bias will not be a big problem, as it can be argued that the size of a company does not by definition influence the turnover per

ship. The results of this research show that the turnover per ship divided by the capacity of the ship (in other words: The turnover per ‘chair’) varies between 800 and 2800 euro per year, with no or little difference between big and small companies. The only exception to this ‘rule’ is the case of Amsterdam. Here one can see much higher turnovers per ‘chair’, up to 6800 euro. This is easily understood by the earlier stated popularity of the canal cruises in Amsterdam. However, this may cause some problems with the results. As stated earlier, the shipping companies in Amsterdam responded more than average. When determining the total economic impact of the sector, this fact might lead to overstating this economic impact. There is no ‘quick fix’ to this problem, as the respondents in Amsterdam are all quite big. Removing one or two from the results, would not have the desired effect, as the total response rate will drop dramatically in this case.

Another problem with the collection of data was that many shipping companies seem not familiar with the term Full-Time-Equivalent (FTE). Of course the term was explained in the questionnaire, but still a lot of companies did obviously not understand its meaning. This resulted in unreliable numbers of employees. After asking companies that set an unreliable high number of employees, a better estimation of the real number of FTE’s was found.

Also other questions were not always answered in the right way. For example, the number of passengers is just unknown for many companies. Because of this, the number of passengers as stated in the next paragraph is based on only 18 observations and 116 ships. So, this number is far less reliable than the turnover and employment statistics. There is also a bias, because all Amsterdam companies, with numbers of passengers that are far higher than average, did answer this question, while many others did not. Furthermore, at least the Amsterdam com-

panies seem to overstate their number of passengers. Counting only the number of passengers in Amsterdam leads to a result of about 3 million passengers, with only 67% of the ships covered. This would lead to a total number of 4.5 million passengers in Amsterdam, while the statistics of municipality of Amsterdam state that the number of passengers is around 3 million per year.

This problem of overstating might indicate a more essential problem. All shipping companies knew on beforehand that the objective of the research was to analyze the economic importance of the sector. As a higher economic importance would lead to more attention for the sector, there are incentives to overstate turnover, number of passengers and number of employees. As there is almost no quantitative information about the sector, it is impossible to check the data with other researches and correct possible errors.

In order to correct for the biases, in particular the overrepresentation of Amsterdam companies and the incentives to overstate the economic impact, the results of the sample are not multiplied by 2.08, which is the outcome of the total sector divided by the sample size (303/146).

This 2.08 was, based on the gained insights in the sector lowered to 1.7. It was decided to lower the multiplier by 0,25 because of the ‘Amsterdam bias’ and with 0,13 for the ‘incentive to overstate’ bias. Those figures can be disputed, particularly with respect to the second bias, as there are no figures on which it is based. So, in reality this multiplier might be somewhat higher. This is expected to be a rather conservative approach, in order to prevent overstating the economic impact of the sector.

4.2.2 Main Results

The main results of the questionnaire and the main conclusion drawn upon those results can be found in table 4.1.

Day trips: Sample results	
Number of ships	146
Turnover	€ 58.023.352,00
Backward Effects	€ 35.974.478,24
Added Value	€ 22.048.873,76
Forward Effects	€ 16.826.772,08
Total Economic Impact	€ 74.850.124,08
Employment	564 FTE

Table 4.1 Day trips: Sample results *Source: Questionnaire; figures 2010*

Turnover

The table shows the number of ships that are owned by the respondents to the questionnaire, 146. Furthermore it shows the total turnover of more than 58 million euro. This indicates that the average turnover per ship is about 400.000 euro, with a spread between 50.000 euro and 1.400.000 million euros. This is quite a bandwidth, which can be explained by the differentiated size and activities of the ships.

Backward effects

To find the backwards effects the intermediate consumptions table of the Central Bureau on Statistics was used. This table shows the intermediate consumption of 66 sectors. Passenger shipping is not directly present in those tables. It can be argued, however, that the intermediate consumption of passenger shipping will be between the intermediate consumption of transport by water, the catering industry and the sports and recreation sector, as passenger shipping has elements of those three sectors. This means that the multiplier of passenger shipping will be between 1,49 (catering industry) and 1,76 (transport by water). Sports and recreation

is just in the middle of this, with a multiplier of 1,61. In the table the multiplier is set at 1,62, the average of the three multipliers. This results in backward effects of almost 36 million euro ($58 \text{ million} * 0,62$). This 36 million euro is the middle of a range between almost 28 million and 44.5 million euro. Important to note is that those backward effects are included in the turnover. Adding up the backward effects with the turnover would lead to double counting and thus overstating the economic impact.

Added Value

The added value as shown in the table is just the turnover minus the backward effects. Also the CBS use this method to measure added value⁶. This leads to an added value of 22 million euro.

Forward effects

The forward effects are researched through the CBS National Accounts input-output table⁷. Just like the backward effects, a combination of the same three sectors was taken. This means that the multiplier of passenger shipping will be between 1,32 (catering industry and sports & recreation) and 1,23 (transport by water). In the table the multiplier is set at 1,29, the average of the three multipliers. This results in forward effects of 16.8 million euro ($58 \text{ million} * 0,29$).

Number of FTE's

Last but not least the number of FTE's is shown in the table. Following the questionnaire results there are 564 people working in the sector. Many of them are part-timers, as passenger shipping has its peak season in the summer. The number of people working in the sector is likely to be higher in reality, as many companies hire employees from temporary employment agencies. Those employees are mostly not taken into account, as it is impossible for shipping companies to calculate the number of FTE's of those temporary employees.

⁶ CBS; BBP, productie en bestedingen; productie en inkomens naar bedrijfstak

⁷ CBS; Nationale rekeningen 2010

Total sector

The above figures result from the questionnaire. These results are levelled up in order to be able to find the economic importance of the total sector. The results are shown below in table 4.2.

Day trips: Total sector	
Number of ships	303
Turnover	€ 98.639.698,40
Backward Effects	€ 61.156.613,01
Added Value	€ 37.483.085,39
Forward Effects	€ 28.605.512,54
Total Economic Impact	€ 127.245.210,94
Employment	1173 FTE

Table 4.2 Day trips: Total sector *Source: Own elaboration; figures 2010*

The calculation of table 2 is quite straightforward. It just yields leveling up the results from the sample for the whole sector, by multiplying the results from the sample by 1,7, as explained in paragraph 4.2.1. This, again, is a quite conservative multiplier, meaning that the real economic impact might even be somewhat higher.

4.3 River Cruises

This paragraph will deal with the main results of the research into hotel cruises on inland waterways. First the collection of data will be discussed, after this the main results are presented and discussed.

4.3.1 Data Collection

The direct economic impact of river cruises is taken into account, but the number that is found is more of a first rough estimation, which should be researched more in the future to be able to define the direct economic impact more accurately. The data was now collected by

asking only 2 river cruise companies about their average turnover per ship and the percentage of turnover that was realised in the Netherlands. This was done because a thorough research into the total Western European cruise market was outside the scope of this research. This research is very limited with respect to turnover of river cruises. As earlier explained it is almost impossible to isolate the Dutch turnover of shipping companies, because of the international character of hotel cruises. The used equation here was:

*Direct economic impact of river cruises = Number of departures from the Netherlands * Average trip duration / average number of sailing days per ship * Average turnover per ship*

Where the ‘number of departures from the Netherlands’ is derived from information of port officials of Amsterdam and Nijmegen. The ‘average trip duration’ and the ‘average number of sailing days’ are derived from information of companies in the sector and ‘average turnover’ is also derived from a couple of companies in the sector. The outcome of this equation is multiplied by 0.8 to correct for the involved uncertainties.

The indirect impact of river cruises was also researched. Backward effects were researched in the same way as in the case of day trips, with a multiplier set at 1,62. Forward effects were researched through a questionnaire among port officials, as explained in chapter 3. Most of the port officials responded quickly to the questionnaire, but there were also municipalities, usually the manager of the ports, that did not respond or indicated not to know how many ships visited their port in 2010. In the end data from 41 ports was collected. The used equation was:

*Forward Impact of River Cruises = Ship Movements * Time * Passengers * Expenditure*

It is impossible to level up the results from the questionnaire to the whole sector as the exact number of ports and moorings is unknown. Also, the ports with a high number of ships per year tend to administrate better than smaller ports with only a few ships per year. One could thus state that the found forward effects are quite conservative and will be bigger in reality.

4.3.2 Main Results

The main results with respect to hotel cruises are presented in this paragraph. Firstly the total Economic impact of river cruises is shown. After this the figures from the table are discussed in more detail.

Total Economic Impact

Table 4.3 shows the results for the total economic impact of river cruises.

Economic Impact River Cruises	
Turnover	€ 84.000.000,00
Backward Effects	€ 52.080.000,00
Added Value	€ 31.920.000,00
Forward Effects	€ 34.432.750,00
Total Economic Impact	€ 118.432.750,00

Table 4.3 Economic Impact River Cruises *Source: Own elaboration; figures 2010*

Turnover

The table below shows the estimation of the turnover in the Netherlands of river cruise ships.

Dutch Turnover River Cruise Ships	
Number of departures from the Netherlands	1500
Average trip duration	7
Average number of sailing days per ship	225
Number of ships allocated to the Netherlands	46,66666667
Average turnover per ship	€ 2.250.000,00
Total turnover	€ 105.000.000,00
Reduction percentage	20%
Estimated turnover Netherlands	€ 84.000.000,00

Table 4.4 Dutch Turnover River Cruise Ships *Source: Own elaboration; Figures 2010*

Port officials of Amsterdam and Arnhem indicate that about 80 % of the ships entering their port are so-called turn-arounds, ships that depart and end their trips in the port. Together this yields about 1500 departures from the Netherlands every year. Consultation of a company in the sector revealed that the average trip duration is about 7 days, and the average number of sailing days per ship per year is 225 days. This yields that 46,7 ships can be assigned to the Netherlands ($1500 * 7 / 225$). Information from the sector suggests that a river cruise ship has an average turnover of 2.25 million euro per year. This means that the total turnover that can be allocated to the Netherlands is estimated at about 105 million euro. The used equation was: Direct economic impact of river cruises = Number of departures from the Netherlands * Average trip duration / average number of sailing days per ship * Average turnover per ship. Because of the fact that there are some uncertainties with those figures, as there is no quantitative research into them, it was decided to multiply this figure by 0.8, in order to lower the risk of overstating the direct economic impact.

Backward Effects

The Backward Effects are assumed to be the same as in the day trip segment, as mostly the same suppliers are involved. Both ships without the possibility for overnight stays and hotel ships need to be maintained, need drinks & food and have to be built. Of course it can be the case that the backward effects of hotel cruises are in reality somewhat different than those of cruises without overnight stays, but there is no theoretical reason to assume this. So, again the multiplier is set at 1,62. This results in backward effects of 45.2 million euro (72.9 million * 0,62).

There is another important aspect that is only partially been taken into account here. According to Hader & Hader (2011) approximately 60 % of new ships are built in the Netherlands. Partially this has been taken into account in the Backward Effects, but this yields only the Dutch turnover, while not all the ships are intended exclusively for the Dutch market. This shipbuilding cannot be seen as backward effects of Dutch river cruises, but it is of course related to the river cruise market. Hader & Hader show that until 2014, 20 out of 35 ships that will enter the market are at least partially built in the Netherlands. As the newest ships cost between 13.5 and 24 million euro, this means that the total turnover of the four shipping yards in the Netherlands will be at least 270 million euro. Which is 67.5 million euro per year on average. This takes only ships that are already order into account. Of course new orders can be placed, which would even enlarge the turnover. The shipyards also employ approximately 325 people. Those figures are not taken into account in the calculation of the total economic impact of passenger shipping, as it would lead to double counting with a part of the shipbuilding investments already taken into account in the backward effect of hotel cruises.

Added Value

The added value as shown in the table is just the turnover minus the backward effects. This leads to an added value of 27.7 million euro.

Forward effects

Forward Effects River Cruises	
Ship Movements	5995
Weighed average time in port (in days)	1,044286906
Average number of passengers	125
Average expenditure per person per day	€ 44,00
Forward Effects	€ 34.432.750,00

Table 4.5 Forward Effects of Hotel Cruises Source: Survey and NBTC, figures 2010

The used equation to find the forward effects was:

$$\text{Forward Impact of River Cruises} = \text{Ship Movements} * \text{Time} * \text{Passengers} * \text{Expenditure}$$

The number of ship movements and the average time in the ports was derived from the short questionnaire that was send to municipalities and port officials. 41 municipalities returned the questionnaire. For the other municipalities applies that it was either impossible to find the responsible officer, or there was just no information available. The average number of passengers is derived from a research into river cruises in Nijmegen (Municipality of Nijmegen, 2011). The average expenditure per person per day was found by the average of NBTC figures about spending of hotel guests and people that hire a bungalow. In 2009 the average spending per day of hotel guests was 53 euro (NBTC, 2010). In this figure the costs for the hotel are excluded. In reality it is more logic that the expenditure of passengers on hotel ships will be somewhat

lower, as on hotel ships food & beverages are mostly included, while in hotels this is not always the case. Furthermore, hotel ships are sailing parts of the day, so passengers on hotel ships have less time to spend money than guests in hotels. Although hotel ships sail mainly during nights and early in the morning, there will be an effect. Another figure of NBTC, about the average spending of people that hire bungalows, suggests an average spending of 35 euro. The average of those two figures is 44 euro. This is assumed to be the average spending per person per day. This figure is consistent with information from the sector.

The weighed average time in ports might be higher or lower in reality. Most of the responsible officers tend to answer the question about the average time in port a little vague. Examples are: ‘Most ships stay for one night’, or: ‘We do not keep record of this, but I think the average time is about 6 hours’. This, of course, yields that the results are uncertain, although it is not expected that this will lead to huge deviations.

The forward effects of 34.4 million euro seem quite small when compared the forward effects of charter sailing. This is easily explained by the fact that hotel cruises tend to be much more internally oriented than the ships of charter sailing, which means that a lot of the forward effects will take effect in foreign countries. Of course there is also a reversed effect, as ships from abroad sail also in the Netherlands. However, it can be the case that this effect is just smaller. Not everything has been taken into account with regard to forward effects. For example, the expenditure of crewmembers when going ashore is not taken into account, as no reliable figures on their spending could be found.

It is striking that the forward effects of hotel cruises related to turnover are only a fraction higher than those of cruises without overnight stays, while one would expect them to be much higher as passengers go ashore

along the journey. Three reasons can be thought of to explain this:

1. The estimated turnover might be too high.
2. The forward effects as researched might be too low.
3. The forward effects are realised more in foreign countries than in the Netherlands, meaning that ships that realise (a share of) their turnover in the Netherlands sail more in foreign countries than other ships sail in the Netherlands.

The most plausible is a combination of the second and third reason. We already know that the forward effects are too low, as not all ports in the Netherlands responded to the questionnaire. Also the third is quite plausible as there are just more places to be seen outside the Netherlands than inside. The first reason that is mentioned is not very realistic, as it was earlier mentioned that the estimation of the turnover is rather conservative.

Number of FTE's

Regarding the number of employees in the sector no reliable figures were found. In most cases the employees of river cruise companies are quite international, as their guests are also from different countries. As shipping companies themselves also do not know exactly how many of their employees come from the Netherlands, it is impossible to state something reliable about this number. ZKA Planners & Consultants suggest that there are between 40 and 50 employees on a ship so that it can be assumed that the number of employees from the Netherlands might be quite substantial, knowing that the number of ships sailing under the Dutch flag is 42. Assuming that the staff of ships sailing under the Dutch flag has the Dutch nationality would leave a total number of

employees between 1680 and 2100. This however is just a wild guess, as it is not true that the staff of ships sailing under the Dutch flag have the by definition the Dutch nationality, neither it is known whether personnel of ships that are not sailing under the Dutch flag does not have the Dutch nationality. However, it can be assumed that the total number of Dutch employees is quite substantial.

4.4 Charter Sailing

The results for charter sailing are directly derived from a research of the BBZ (BBZ, 2011). Of course the BBZ was asked permission before their results were used. In the table below the main results are shown.

Charter Sailing	
Number of ships	397
Turnover	€ 53.403.500,00
Backward Effects	€ 10.680.700,00
Added Value	€ 42.722.800,00
Forward Effects	€ 33.303.600,00
Total Economic Impact	€ 86.707.100,00
Employment	1029 FTE

Table 4.6 Economic impact charter sailing *Source: BBZ, edited; figures 2010*

Turnover

The turnover and employment are calculated by using results of a sample among the members of BBZ. Total turnover of charter sailing is estimated at 53.4 million, while total employment is 1029 FTE.

Backward Effects

The backward effects of charter sailing are not researched by the BBZ. One could argue that the backward effects of charter sailing are similar to those of the 'white fleet', as they exploit the same activities. This

reasoning however, does not entirely hold. The typical entrepreneur in the sector of charter sailing has one sailing ship, which is maintained by themselves. As the ships are typically sailing, so the gasoline costs are probably lower. Also with respect to catering those ships are often less equipped. So, the backward effects of this sector will definitely be lower than the backward effects in other sectors. Even sectors with very small forward effects still have a multiplier of about 1.2⁸, because of the argued small backward effects of charter sailing, this 1.2 is assumed to be the multiplier of charter sailing. This leads to backward effects of 10.7 million euro (53.4 million * 0.2).

Added Value

The added value as shown in the table is just the turnover minus the backward effects. This leads to an added value of 42.7 million euro. This is much higher than the added value of day trips and river cruises. The lower backward effects of this segment easily explain this.

Forward Effects

The forward effects are calculated here by multiplying the total number of guest days by the average spending per passenger per day. The total number of guest days was found by the questionnaire of BBZ, while the average spending per passenger per day was found by using figures from the NBTC, The Dutch Bureau on Tourism and Congresses (35 euro). It was assumed that, on average guests on a ship of charter sailing act the same as people that hire a bungalow for their holidays. This was done on the basis that the circumstances of both types of holidays are almost the same. One can go on a trip during daytime and in most cases one needs to take care of ones own food and beverages. A limitation here is that the actual sailing is an integral part of the holiday, while just ‘sitting in a bungalow’ is not by definition part of someone’s holiday. This is why the results of the BBZ are multiplied by a factor of 0.8,

8 CBS; BBP, productie en bestedingen; productie en inkomens naar bedrijfstak

in order to have a conservative approach of the forward effects. This results in forward effects of 33.3 million euro ($41.6 * 0.8$).

It remains striking that the forward effects of charter sailing are relatively high when compared to the forward effects of river cruises. Four explanations can be thought of. Some of them have already been mentioned in paragraph 4.3.2:

1. The forward effects of river cruises as researched might be too low.
2. The forward effects of river cruises are realised more in foreign countries than in the Netherlands, meaning that ships that realise (a share of) their turnover in the Netherlands sail more in foreign countries than other ships sail in the Netherlands.
3. The forward effects of charter sailing as researched by the BBZ are too high
4. River cruises are usually more luxury than ships of charter sailing. This is by definition reflected in the price. This might yield that that ratio between turnover and forward effects is influenced, assuming *ceteris paribus*.

The most plausible is a combination between explanations 1, 2 and 4. We already know that the forward effects of river cruises are too low, as not all ports in the Netherlands responded to the questionnaire. The second explanation is also quite plausible as there are just more places to be seen outside the Netherlands than inside. The fourth explanation is also quite plausible, although this research is not assuming *ceteris paribus*, as the average expenditure of guests on river cruises is set at 44 euro and the average expenditure of guests of charter sailing is, after

correction, set at 28 euro ($35 * 0.8$). However, it still might be the case that the price of charter sailing trips and river cruises differ even more. Explanation 3 is less plausible as this research already lowered the forward effect of charter sailing as researched by the BBZ by 20 %.

Number of FTE's

The employment seems quite high compared to the employment in the sample carried out for the 'white fleet'. The employment according to the BBZ is only a fraction smaller than the employment of the 'white fleet' with a turnover that is almost twice as big as the turnover of the 'charter sailing'. The number, size and nature of the ships can explain this high number of employees. Firstly, charter sailing simply has more ships, which explains partly the number of employees. Secondly, the size of the ships of charter sailing is a lot smaller. Economies of scale play a role here, as no matter the size of a ship, one will always need a skipper and some sailors. Thirdly, the ships of charter sailing are mostly sailing ships, while all ships of the white fleet are motorised. It goes without saying that sailing ships are more labour intensive than motorised ships.

4.5 Conclusion

After analyzing the different parts of the sector, some conclusions about the size of the sector can be drawn. Table 4.7 shows the main results.

Economic Impact Passenger Shipping				
Economic Impact	Day trips	Hotel Cruises	Charter Sailing	Total
Turnover	€ 98.639.698,40	€ 84.000.000,00	€ 53.403.500,00	€ 236.043.198,40
Backward Effects	€ 61.156.613,01	€ 52.080.000,00	€ 10.680.700,00	€ 123.917.313,01
Added Value	€ 37.483.085,39	€ 31.920.000,00	€ 42.722.800,00	€ 112.125.885,39
Forward Effects	€ 28.605.512,54	€ 34.432.750,00	€ 33.303.600,00	€ 96.341.862,54
Total Economic Impact	€ 127.245.210,94	€ 118.432.750,00	€ 86.707.100,00	€ 332.385.060,94
Employment		TO cruises without overnight stays derived from questionnaire		
Day Trips	1173 FTE	TO hotel cruises estimated based on information from sector		
Charter Sailing	1029 FTE	TO and forward effects charter sailing based on BBZ research		
Total Employment	2814 FTE	FE cruises without overnight stays based on CBS data		
		FE hotel cruises derived from questionnaire		
		BE are based on CBS data		
		E cruises without overnight stays based on questionnaire		
		E charter sailing based on BBZ research		

Table 4.7 Economic Impact Passenger Shipping *Source: Own elaboration; figures 2010*

The total economic impact that is found in this research is 332.4 million euro, of which 96.3 million euro are forward effects. 123.9 million euro are backward effects, leaving 112.1 million euro of added value.

Analysis of results

It is striking to see that the turnover of 236 million euro is about 10 per cent of the total turnover of inland shipping in the Netherlands, which had a total turnover of 2.3 billion in 2009, according to the CBS⁹. Applying a growth percentage of 1.8% as researched by ABN Amro (2011) results still in a rounded off turnover of 2.3 billion euro in 2010. It was kind of a surprise that passenger shipping on inland waterways takes such a large share of the total turnover of inland shipping and is still

quite unknown and overlooked by policy makers.

Of course one can argue that passenger shipping is of lesser strategic importance than goods transport regarding inland shipping, as this is seen as an environmentally friendly transport mode as alternative to road transport. Road transport is not only looked upon as polluting, but there are also problems with capacity and congestion. The inland waterways in the Netherlands are widespread with several rivers with which large parts of the hinterland of the port of Rotterdam can be reached. It is clear that for this reason inland shipping is of strategic importance to the Dutch economy. Passenger shipping is not of such a strategic importance, as alternatives are not by definition more polluting. Also the aspect of capacity does not play a role here.

However, regardless of the strategic importance of the shipping of goods as part of inland shipping, passenger shipping is still responsible for 10% of inland shipping and particularly the segment of river cruises is growing faster than ever. This has a strong effect on the Dutch economy as most river cruise ships are built in the Netherlands.

The average turnover per employee in passenger shipping on inland waterways is 69.000 euro. Here the turnover of river cruises was excluded from the analysis, as the number of employees is unknown in this segment. Excluding charter sailing from the analysis this is even 84.000 euro. As explained earlier this is due to the fact that charter sailing is more labour intensive. Reliable figures on the number of employees in total inland shipping were not found. A number of organisations come up with totally different numbers between 7500¹⁰ and 15500¹¹. With a total turnover of 2.3 billion this results in any case in much higher turnovers per employee. This is easily explained by the fact that in passenger shipping there is also hospitality personnel, besides nautical per-

10 <http://www.informatie.binnenvaart.nl/werken/361-arbeidsmarkt-binnenvaart.html>

11 Waardevol transport, 2007-2008

sonnel. It turns out that this extra number of personnel is not (fully) compensated by a higher turnover.

Annex 3 shows the economic impact of passenger shipping including ferry services. Ferry services have a turnover of 27.4 million euro, with 612 FTE. This leaves only 44500 euro turnover per employee. This can be explained by the fact that ferry services often are subsidized (Den Hartogh, 2010). This subsidy is not taken into account in the turnover figures.

To summarize, passenger shipping on inland waterways deserves more attention from policy makers. It might not be a key sector for the Dutch economy, but looking to the sector as a part of inland shipping shows that it is more important than one would think looking to the attention the sector gets in the media and from policy makers.

5. Qualitative Analysis of the Sector

5.1 Introduction

In this chapter the sector of passenger shipping will be discussed in a more qualitative way. To analyze the sector in this way 14 people in the sector were interviewed. The results were analysed using the SWOT analysis.

It was tried to select the interviewees in such a way that they would represent all kind of companies in the sector. So there were canal cruise companies amongst them, both within and outside Amsterdam (Blue-Boat Company, Amsterdam Canal Cruises, Rondvaartbedrijf Kool), small companies with only one ship (Denick), a river cruise company (Feenstra), companies aiming at large events (Constant in Beweging, Ocean Diva), some companies that exploit different activities (Rederij

Eureka, Spido, Zilvermeeuw) and a company that is known for its new and innovative ideas (Rederij Tonissen). Furthermore there were interviews with some organisations involved in passenger shipping (CBRB, VPAH, Amsterdam Cruise Port, VAR, VEVAG).

Through the interviews it became clear that there are a lot of differences in the sector. There are quite some family-owned businesses with one ship, but there are also a lot bigger companies with up to 40 ships. There are also many different business concepts. There are companies that position themselves as a classic party ship, while others market themselves a mobile event location. Some of the shipping companies operate in a niche market with little, if any, competition. A good example of this is 'De Zilvermeeuw' which offers cruises in a nature area called 'de Biesbosch'. Other companies, in particular those who are active in the event market, face fierce competition. However, it was striking to see that almost all companies deal with the same issues. For example, all shipping companies think that there is too little contact with policy makers. Another commonly acknowledged problem that it is quite hard to find adequately educated, nautical employees is recognised by almost all shipping companies.

5.2 SWOT

The SWOT analysis is a commonly used way to analyse Strengths, Weaknesses, Opportunities and Threats in a wide variety of fields. In a SWOT analysis Strengths and Weaknesses are regarded as internal to a sector or organisation and Opportunities and Threats are external. Internal means here those things where the sector has a direct influence. Opportunities and threats are external because the sector has no, or no direct influence on them. Examples of the use of SWOT analysis in academic literature are multiple (Jackson et al., 2003; Kurttila et al.,

2000; Mengel et al., 2007). However, there is also empirical criticism on SWOT-analysis (Hill & Westbrook, 1997). This criticism indicates that applying a SWOT-analysis not necessarily improves the performance of a firm. It might even harm performance. However, a direct improvement of the performance of a single firm is not the objective in this research, here it is the objective to show the major issues the sector is dealing with. Furthermore, A SWOT-analysis was applied here because it is the most suitable way to give a structured overview of input from the sector about the sector and thoughts and considerations of the researcher.

5.2.1 Strengths

Different business concepts

An important strength of the sector as a whole is that there are many different business concepts: Small companies with just one, classic party ship, big companies with huge ships that offer much more than just a place for a family or small company to have a party. Of course there are also many companies between those two extremes. Furthermore there are companies that offer (almost) only canal cruises or other short cruises and companies that offer hotel cruises. This is a strength because consumers have a choice; this will definitely attract more people than a sector with only on homogeneous product. It also makes the sector less vulnerable for economic decline. A good example is the economic decline following from the financial crisis in 2008 and 2009. Many companies state that on the event market there was a huge decline, but other segments stayed stable or even grew during the crisis. For example, many people did have to decide to stay in the Netherlands during their holidays, resulting in more demand for canal tours in Amsterdam.

Flexibility of services

The second acknowledged strength of the sector is that companies can offer their services everywhere where waterways are available. This particularly holds for the events and party segments. Normally event locations have a fixed location, while ‘mobile locations’ on water are much more flexible, particularly because the Netherlands is a very water-rich country, you can reach almost every place by water.

Long tradition and knowledge

A third strength is the long tradition of the sector. There is a lot of knowledge about technical and nautical issues and the sector seems quite capable of meeting the demands of their customers. The safety track record of the sector is very good. In 2008, the ‘Onderzoeksraad voor de veiligheid’, a public organization that aims to prevent calamities, issued a case study on 10 cases of fire on board of passenger ships between September 1999 and August 2004. Although material damage was sometimes considerable, none of these accidents involved any casualties. According to the Onderzoeksraad voor veiligheid, this was sometimes just luck, but still one can state that passenger ships cause zero casualties, far less than other modes of transport.

Long lifecycle of ships

A fourth identified strength is the long lifecycle of ships. This means that huge investments only occur when a company is expanding its activities. Of course, ships have to be maintained and parts of it have to be replaced from time to time, the ships itself stay in business. This is besides a strength also a weak point of the sector, as explained in the next paragraph.

5.2.2 Weaknesses

Old-fashioned ships

A first weakness is that many ships are a bit old-fashioned. There is still a market for those ships, and this market might stay, it is not a growing market, according to shipping companies. Partly this is due to market saturation. Ships that are not only old-fashioned, but also badly maintained explain another part. Those ships influence the image of the sector. Questions arise about how those ships are able to get a certificate. Shipping companies question even whether all ships have certificates and if they have, whether they meet requirements about personnel and their education. Of course, there is no hard evidence for this presumption, but many companies mention the same ships and companies as suspected. After researching the names one can state that there are indeed directions that support the presumption that some ships and companies do not meet the official requirements. Some companies or ships cannot be found in the IVW overview of the sector, nor in the one of IVR. Sometimes companies can also not be found in the registers of the chamber of commerce. Also this is no hard evidence, as the involved companies and ships can be known by other names than with which they market themselves. However, after all it seems to be the case that if companies succeed in avoiding rules without getting caught. This definitely leads to unfair competition, as companies that do obey regulations obviously have higher costs.

Not trendy

Furthermore cruising is not really trendy. Many, particularly young people, are looking for spectacular or trendy attractions. According to companies in the sector the average age of the customers in particularly river cruises is far above fifty years. Also canal cruise companies indicate that a large part of their customers are elderly or disabled people. Of course this means that the market remains quite limited. It is ques-

tionable whether the sector will succeed in attracting young people, but companies should try to attract at least people that are younger than the current customers. This can be done through marketing campaigns, or by changing the destinations. For example, a river cruise can go to ‘classic’ cities in Europe, but one can also think of river cruises that hop around popular ‘party’ cities. This might expand the market. One can also think of more modern ships, as many ships, particularly in the cruise segment without overnight stays, are quite old-fashioned.

Unable to unite

A third weakness is that the sector seems not able to unite and defend its interests, with only a relatively small part of the companies is member of the CBRB. Here the problem of free riding arises. Many companies appreciate the work that the CBRB is doing in defending their interests, but they seem not willing to pay for it. Their reasoning is that the CBRB is there to stay, whether they are member or not. Of course, this is a valid reasoning for cost-minimizing, profit-maximizing firms. However, when more shipping companies were member of the CBRB, this organisation could defend the interests of the sector better. The CBRB would have a stronger case, because they would represent more companies. Also with passenger shipping companies bringing in more money, there would be more time available to represent the sector even better. Partly because of this, there is little or no pro-active contact with policy makers. There is just no time for this, all available time is grasped by ad hoc problems that need attention directly. This is an opportunity for the sector, as it is now overlooked and ignored sometimes. This results in regulations of which the sector becomes aware when the decision is already taken.

Sector is conservative

The last identified weakness is that the sector is quite conservative, quite some shipping companies are family-owned and do what they have been doing for years and years, without thinking of innovation and growth potential. This is not a problem as long as there is a market for the product, but will become a problem when this market declines. There are some promising examples of innovation, where new products enter the market. A recent example is the splash tours, an amphibious bus, that start at land, drive into the water, with the destination again on the land. However, this kind of new concepts is scarce.

5.2.3 Opportunities*Water is attractive*

When asking owners of shipping companies what the most important strength of their company is, they respond quite similar. The essence of the answer is most times: People just like to be on the water. So, one can state that the attraction of the sector is not by definition the product it offers, but the surface on which the activities take place. Of course the surroundings also play an important role in this respect.

Growing demand in river cruises

A second opportunity, which applies only to the river cruises, is the fast growing market. By 2014 30 new ships will have entered the market in the European Union, which means an increase of capacity of almost 15%. This indicates the fast growing demand for river cruises. This is of course a huge opportunity for river cruise companies. A related development is the slightly decreasing average age of customers of river cruises (CCR & European Commission, 2010).

Only way to visit Amsterdam canal girdle

Another opportunity for the sector, specified to the case of Amsterdam, is that a canal tour is the only way to visit the Amsterdam Canal girdle in a convenient way. Other modes of transport are not allowed in the small streets along the canals. So one can walk, rent a bike, or take a boat trip. With no canal cruises available, 3 million people, with a lot of elderly people among them, should walk or bike along the canals. This is approximately 25000 a day, on average. It is likely that this number is only a fraction of the people that will walk there on peak days. The same reasoning holds for some nature reserves, like the 'Biesbosch', although on a smaller scale than in Amsterdam.

Ageing of the population

The fourth identified opportunity for the sector is the ageing of the population. As stated earlier, a large part of the customers of the sector are elderly people. This ageing of the population will thus cause an increase in potential customers, which will lead to higher turnovers and an even bigger economic impact of the sector.

5.2.4 Threats*Vague and unnecessary regulations*

A first threat is regulations regarding technical requirements & safety and hospitality rules, of which it is vague whether they apply to passenger ships. It might be the case that sooner or late some officer comes up with certain regulations that are already applying to the sector for years, but nobody was aware of. Another problem with the rules and regulations is that the organisation that set regulations for passenger ships, the Central Commission for navigation on the Rhine (CCR) is seen as quite bureaucratic. They set regulations that are seen as unnecessary. There is an example that is mentioned by a lot of companies. Alarm switches with which customers can warn personnel should be installed

throughout ships. Shipping companies consider this regulation as unnecessary, as they cannot think of a possible situation where it is faster to pull an alarm button than to shout to the personnel, while installing the alarm switches is quite expensive. A second example is the regulation that requires 2nd independent propulsion. According to the sector this requires an investment of around 200.000 euro, while safety is not by definition increased. They state that, in case the engines might fail, there are a number of other ways to go ashore safe. For example, the bow thruster, which is present on every ship, can do the job, but is often not able to reach the speed that is required in the regulation. It is hard to see however, in what way this speed requirement enhances safety.

Too little sewerage facilities

Another problem that is arising is that within short time it will become forbidden to discharge wastewater directly to the water¹². Ships need to make use of the sewerage system to discharge this water. However, there are almost no sewerage facilities available for passenger ships. Companies are many times not even allowed to create those facilities, as municipalities prohibit it. When this regulation will come into effect, many shipping companies in the sector will experience problems. There are a few exceptions of municipalities, where facilities are already there, or will be realised soon. The CBRB is taking action to stimulate municipalities to come up with sewerage facilities for passenger ships. Of course it sounds quite strange that companies have to meet certain requirements, which they can obviously not provide themselves, but that will lead to fines if not met. A member of the Dutch House of Commons asked questions to the responsible minister about the facilities for sewerage. Her answer is that market parties indicate that they can handle the demand for discharging the wastewater¹³. However, this is disputed by a lot of shipping companies and the CBRB. So, there is still no solution that suits all parties, while the regulation will come into effect on January 1st 2012.

12 <http://www.sabni.nl/files%20SAV/10.3%20Handboek%20SAV.pdf>

13 <http://www.rijksoverheid.nl/ministeries/ienm/documenten-en-publicaties/kamerstukken/2011/10/04/antwoorden-van-minister-schultz-van-haegen-ienm-op-de-vragen-van-het-kamerlid-de-caluwe-vvd-over-scheepsafvalstoffenverdrag.html>

Hard to invest

Another threat is that it seems almost impossible to invest in new ships, as gross margins are quite small. This might become a problem when gross margins stay small, as investments and innovation are of the utmost importance for a healthy sector. River cruise ships are an exception to this rule; this is also the only really growing segment in the sector. This lack of new ships means that the sector is not able to modernise quickly. This system is reinforced by the fact that older ships stay in business, so there is no need for new ships, as capacity remains stable.

Image of the sector

A fourth weakness is the image of the sector. The image of the sector is sometimes quite negative, particularly in the case of Amsterdam. Particularly inhabitants have a negative view of the sector. This has mainly to do with noise and environmental pollution. There are techniques that enable ships to sail on electrically driven engines, but those techniques narrow the sailing time per day to approximately eight hours in the case of Amsterdam. This is, particularly during summer times half of the sailing time of normal ships. This has of course a serious effect on profitability and there are thus not a lot of ships with electricity driven engine. However, the municipality of Amsterdam is only granting new licenses to environmental friendly ships.

Shortage of nautical personnel

The last indentified threat for the sector is the shortage of nautical personnel. Many companies complain that it is hard to find educated personnel for their ships. A related problem is that the personnel that is available, is often close to retirement. So, it is expected that this problem will only become bigger in coming years. Possible solution is a new study in Amsterdam, but regulations do not allow this for the whole Netherlands, only for the type of ships that typically sail in the Amster-

dam canals. Also employees from outside the Netherlands could be a solution, but some shipping companies regard this as a threat for the safety on board, as communication will become more difficult when some of the employees do not speak Dutch.

5.2.5 Results

In table 5.1 the results of the SWOT analysis are shown.

Strengths	Weaknesses
1. Many different business concepts	1. Many ships are a bit old-fashioned
2. Services can be offered everywhere where waterways are available	2. Cruising is not trendy
3. Long tradition of the sector	3. Sector seems not able to unite and defend its interests
4. Long lifecycle of the ships	4. The sector is quite conservative
Opportunities	Threats
1. People just like to be on the water	1. Vague and unnecessary regulations
2. More pro-active contact with policy makers	2. Hard to make investments
3. The only way to visit the Amsterdam Canal girdle	3. Sewerage will become required, but is not available
4. Ageing of the population	4. Image of the sector
	5. Shortage of nautical personnel

Table 5.1 SWOT analysis *Source: Own elaboration*

In the above table all strengths, weaknesses, opportunities and threats are summed. However, these are not the policy recommendations that should be the outcome of this chapter. Therefore the second step in the SWOT analysis has to be taken; the confrontation matrix. The next paragraph will deal with this confrontation matrix.

5.3 Confrontation Matrix

In the confrontation matrix the strengths and weaknesses are confronted with the opportunities and threats. This yields 72 combinations in the case of this research. Those will be presented in a matrix. After this the results will be scored from 1 to 5 in order to indentify the most important issues. The most important issues will be discussed afterwards. The questions that are asked here are: How can strength X be used to exploit opportunity Y? How can strength X be used to avoid threat Y? How can weakness X be strengthened in order to make use of opportunity Y? How can weakness X be strengthened in order to avoid threat Y?

Confrontation Matrix		Opportunities				Threats				
		Water is attractive	Growing demand cruises	Amsterdam canal girdle	Ageing of population	Vague and needless regulations	Hard to invest	Sewerage	Image	Nautical personnel
Strengths	Different business concepts	3	1	1	3	1	2	1	3	1
	Flexibility of services	4	1	1	5	3	1	5	2	2
	Tradition and knowledge	1	4	1	2	1	3	1	2	1
	Long lifecycle of ships	1	2	2	2	3	5	1	4	1
Weaknesses	Old-fashioned day ships	1	1	2	3	1	3	2	3	1
	Not trendy	4	1	3	2	1	3	1	2	3
	Unable to unite	1	3	3	1	5	2	5	3	2
	Conservative	2	2	2	2	2	5	1	2	3

Table 5.2 Confrontation Matrix *Source: Own elaboration*

It should be noted that the scoring in the table above is quite arbitrary. There is not a scoring method to calculate the scores; it is just based on insights in the sector and own judgments. Only the so-called issues that received a score of 4 or 5 are being discussed here, as discussing all 72 issues would be redundant, as most of the issues are assumed to be not too relevant.

Flexibility of services – Attractiveness of water

The strength that the offered services of passenger shipping, and particularly those of the party and event segment, are quite flexible, combined with the opportunity that it is assumed that people like recreation on water could be exploited. Because of the flexibility of the location the suppliers can easily take care of demand in every place where people like to be on water.

Flexibility of services – Ageing of the population

The flexibility of services and the ageing of the population is an opportunity for the sector. Elderly people are often less mobile than other parts of the population. As the flexibility of services is seen as a strength of this sector, this might be of big importance in serving elderly people, as they can, in most cases, be served quite close to the place where they live.

Tradition and knowledge – Growing demand in river cruises

The tradition and knowledge of the Dutch passenger shipping sector might be of importance in exploiting the opportunity of the rapidly growing demand in river cruises. As the sector has knowledge about preferences of customers and with four shipyards in the Netherlands, companies in the river cruise segment are able to respond quickly to changes in demand.

Flexibility of services – No sewerage facilities

The threat that there are no sewerage facilities in many places, while wastewater cannot be disposed into the water by the first of January 2012 might undermine the strength of the flexibility of services, as ships need to be at a place where they can discharge their wastewater by the end of a day. An alternative would be either to realise huge tanks for the storage of wastewater on their ships, or to realise pontoons at their

berths (or elsewhere) for the collection of wastewater. With only a few places in the Netherlands where sewerage facilities for ships are already realised, the flexibility of services offered by the sector is definitely at stake. There are some potential solutions for this issue. The first is mobile facilities where ships can discharge their wastewater. In fact, those mobile facilities are already there; the so-called ‘bilgeboot’, ships that are originally used to collect used oil from other ships, but that also can be used to collect wastewater from passenger ships. However, it is questioned by some of the interviewees whether those ships have enough capacity. Furthermore, even if total capacity might be sufficient it is questionable whether the ‘bilgeboten’ are able at all time to be where the passenger ships need them. So, this is only a partial solution. Another solution might be either the earlier mentioned realisation of larger tanks for the storage of wastewater, or the realisation of pontoons for the collection of waste water. However, this first solution is expensive and most ships have not enough room for such huge tanks. The second solution, the realisation of pontoons, is not feasible since berths either have not enough room to add a pontoon, or the local authorities prohibit it. The easiest, quite straightforward solution is that municipalities will yet realise facilities, or at least grant permission to shipping companies to realise facilities at their regular quay. The reasons that this is not happening vary too much to discuss them all, but it seems that many municipalities just not have the willingness to cooperate.

Long lifecycle of ships – Hard to invest

The strength of the sector that ships have a long lifecycles counters the threat that it is hard to invest in the day ship business at least partially. As ships stay in business for many years, there is just not a big need for investments with a market that is quite stable. Of course, it stays hard to come up with innovative products and services without the possibility to invest a lot of money. Also this enlarges the weakness of old fashioned ships.

Long lifecycle of ships – Image of the sector

The long lifecycle of ships is seen as a strength, but in combination with the image of the sector it is more of a weakness, as older ships are often built with older techniques and are more polluting than newer ships. There is not a quick solution for this problem. It is questionable whether the image of the sector is correct. As mentioned the problem of image particularly plays a role in Amsterdam. Inhabitants of the city complain about pollution and noise. However, the ships that are seen as most polluting, are in fact running on biodiesel. This biodiesel causes quite a smell, and this smell is equalled with pollution. A solution to avoid the threat is to launch a marketing campaign with figures about the pollution and market the canal cruises as an environmentally friendly mode of transport.

Not trendy – Water is Attractive

A weakness that should be strengthened in order to exploit the opportunity that water is seen as attractive is that many of the products are not seen as spectacular or trendy. In order to fully exploit the opportunity that water is attractive, more spectacular or trendy products should be exploited. The amphibious busses that are marketed as ‘the most splashing way to experience Rotterdam/Amsterdam’¹⁴ are a good example of this. It is questionable whether those ‘splashtours’ are as spectacular as they are marketed, but at least the moment the bus is driving into the water is experienced as more spectacular than a normal canal tour. Besides this some companies indicate that they are trying to make their tours more trendy and modern by making more use of multimedia and making the tour more interactive. However, regardless of those examples a canal cruise or other sightseeing tour will probably never become the most spectacular attraction. This is not by definition a problem; there are also a lot of people who are interested in less spectacular activities. However, the more spectacular the product can be made, the higher the demand will be.

14 www.splashtours.nl; www.floatingdutchman.nl

Unable to unite – Vague and needless regulations

In order to avoid the threat of vague and needless regulations it is important that the sector will unite more and defend its interests. Vague refers here to the fact that it is vague whether or not certain regulations apply to the sector; the regulations are not vague in itself. It is quite straightforward that in order to have more influence on decisions, one needs to represent as many companies as possible. Furthermore it is important that policy makers are not contacted by a bunch of different organisations and companies, but by just one organisation that represents all other organisations. The question is how to convince the sector that it is important to be member of an organisation that represents the interests of the sector and how to avoid the problem of free riding. The first problem might be solved by publishing the achievements of the organisation in the specialized inland shipping newspaper, such as ‘Schuttevaer’ and ‘de binnenvaartkrant’. However, CBRB, as the biggest representing organisation of passenger shipping, is already doing this. Furthermore, a lot of the work of CBRB is not suitable for publication, as it is hardly news that a rule is not coming into effect. Many of the work is on the background and is not easily seen by shipping companies that are not member. Also time and money for an extensive marketing campaign is not available. However, the CBRB might consider to attract attention in media that are related to tourism and events, as some companies do not see themselves as a part of inland shipping, but more as a part of tourism, or as part of the event market. It is questionable whether they read the typical inland shipping newspapers. However, it seems that free riding is a bigger problem. All shipping companies are aware of the existence of the CBRB, as there is so much publicity in the earlier mentioned inland shipping newspapers that is impossible that shipping companies never heard the CBRB. Maybe they are not always convinced of the achievements of the CBRB, but even this seems not the biggest problem. Some shipping companies, mostly companies that did

not want further cooperation with the research, stated that it was clear to them that the CBRB does a good job, but that this fact proves that the CBRB does not need them as a member to be able to do a good job. This is a valid reasoning for cost minimizing companies. However, for the sector as a whole this yields the problem that there is just no time and money to handle all problems and have regular contact with policy makers. In the long run this is negative for the sector as a whole and also for individual shipping companies. Free riding is a widely spread phenomena in collective action problems, and a solution that applies in all cases is never found. Persistently communicating why it is important that as many shipping companies as possible should be member and moral calls might reduce the problem. Another part of the problem is that policy makers often tend to overlook the sector, while it was shown that the sector is an important part of inland shipping. More publicity and information about the sector might reduce this problem. A total elaboration about this particular problem, however, is outside the scope of this research.

Unable to unite – No sewerage facilities

The same reasoning as above holds for this problem. Furthermore it is surprising to see that so many municipalities are not willing to cooperate, while it is clear that when the regulations about discharging wastewater come into effect shipping companies cannot operate without those facilities.

Conservative – Hard to invest

To enhance gross margins it is important to come up with innovative ideas, where competition is less fierce than for existing products. However, it was stated that the sector is quite conservative and not very innovative. Only a few shipping try to innovate their products and try to reach new markets. Of course it is quite hard for small, family owned

businesses to innovate and invest. It is also not a requirement for them; as long as their ship stays in business they earn enough money to keep their company and family alive, so they have no real incentive for innovation and investments. In the long run, however, investments might be necessary, because of changes in demand or regulations. In this case innovations also is required, because it seems impossible to recover investments of a traditional party ship.

5.4 Conclusion

This chapter dealt with the SWOT analysis of passenger shipping on inland waterways. The most important issues are discussed via the confrontation matrix. The recommendations following from this discussion are divided into 4 groups: Flexibility, Innovation, Inability to Unite and Government.

Flexibility

The flexibility of services offered by the sector is both a strength, because customers can be served at different places. This effect is enhanced by the fact that shipping companies indicate that a large share of there customers is elderly people, who are assumed to be less mobile. On the other hand the flexibility causes some problems. The first is that the flexibility of the services makes competition fierce, as all ships can sail everywhere; it is hard to ‘capture’ a part of the market. Secondly, with the upcoming sewerage regulations flexibility will cause problems, as facilities to discharge wastewater are not flexible and also hardly available.

Innovation

As the sector is quite conservative and gross margins are small, it seems hard for the sector to innovate and invest in new products and services. In the short run this does not cause problems, as shipping companies seem to be able to survive under current condition. In the long run however, innovation and investments are of the utmost importance for every sector, so passenger shipping companies should focus more on innovation, to secure the future of the sector.

Inability to Unite

The most important recommendation for the sector is to try to unite itself more, although it is acknowledged that it is quite hard to tackle the free-riding problem, as free-riding is in the short run a rational decision for profit maximizing shipping companies. However, in order to attract more attention from policy makers and to be able to influence decision making, it is important to be united and have one representing organisation.

Government

The relation between this sector and the government is the fourth topic that can be improved. It is related to the problem that the sector seems unable to unite. Almost all shipping companies indicate unnecessary regulations and the problem of discharging wastewater as threats for the sector. However, there is not a lot of contact with governments on national and supranational level. Most times individual companies have contacts with local authorities, but as the sewerage example indicates, also here contact is not always experienced as positive. It is striking that the sector is often ignored or overlooked. There are multiple strategy documents for inland shipping, from market parties and from the government, but passenger shipping is never even mentioned.

6. Conclusions & Recommendations

This chapter deals with the most important conclusions and recommendations of this research. Firstly, the conclusions will be discussed. After this limitations of this research and recommendations for further research will be discussed.

6.1 Conclusions

The scope of the research is the passenger shipping on inland waterways, including tours, river cruises and charters. Ferry services, although they do belong to passenger shipping, will not be taken into account. The size of the total fleet is 742 ships.

The direct economic impact is defined in terms of some basic economic indicators like total turnover and employment. The indirect economic

impact is measured in backward and forward impacts. In the case of this research the direct economic impact is researched through a survey, with the exception of river cruises where the direct impact is only a rough estimation based on the number of ships leaving from the Netherlands and the estimated average turnover per ship. The direct economic impact of river cruises was founded by the following equation:

$$\text{Direct economic impact of river cruises} = \text{Number of departures from the Netherlands} * \text{Average trip duration} / \text{average number of sailing days per ship} * \text{Average turnover per ship}$$

Where the ‘number of departures from the Netherlands’ is derived from information of port officials of Amsterdam and Nijmegen, the ‘average trip duration’ and the ‘average number of sailing days’ are derived from information of companies in the sector and ‘average turnover’ is also derived from a couple of companies in the sector. The outcome of this equation is multiplied by 0.8 to correct for the involved uncertainties.

The backward effects are researched through input-output models. The sector passenger shipping is not available here, but there are some similar sectors. The forward impact of the day trip segment was also derived from input output tables. The forward impact of river cruises was researched using the following equation:

$$\text{Forward Impact of River Cruises} = \text{Ships} * \text{Time} * \text{Passengers} * \text{Expenditure}$$

Where ‘Ships’ stands for the total number of ships entering a port in 2010, ‘Time’ is the average number of days a ship stays in a port, ‘passengers’ is the average number of passengers on a river cruise ship and ‘spending’ is the average spending per passenger per day. Direct and

forward economic impacts of charter sailing are derived from BBZ research.

The table below shows the total economic impact that was found:

Economic Impact Passenger Shipping				
Economic Impact	Day trips	Hotel Cruises	Charter Sailing	Total
Turnover	€ 98.639.698,40	€ 84.000.000,00	€ 53.403.500,00	€ 236.043.198,40
Backward Effects	€ 61.156.613,01	€ 52.080.000,00	€ 10.680.700,00	€ 123.917.313,01
Added Value	€ 37.483.085,39	€ 31.920.000,00	€ 42.722.800,00	€ 112.125.885,39
Forward Effects	€ 28.605.512,54	€ 34.432.750,00	€ 33.303.600,00	€ 96.341.862,54
Total Economic Impact	€ 127.245.210,94	€ 118.432.750,00	€ 86.707.100,00	€ 332.385.060,94
Employment		TO cruises without overnight stays derived from questionnaire		
Day Trips	1173 FTE	TO hotel cruises estimated based on information from sector		
Charter Sailing	1029 FTE	TO and forward effects charter sailing based on BBZ research		
Total Employment	2814 FTE	FE cruises without overnight stays based on CBS data		
		FE hotel cruises derived from questionnaire		
		BE are based on CBS data		
		E cruises without overnight stays based on questionnaire		
		E charter sailing based on BBZ research		

Table 6.1 Economic Impact Passenger Shipping *Source: Own elaboration; figures 2010*

The total economic impact that is found in this research is 332.4 million euro, of which 96.3 million euro are forward effects. 123.9 million euro are backward effects, leaving 112.1 million euro of added value.

It is striking to see that the turnover of 236 million euro is about 10 percent of the total turnover of inland shipping in the Netherlands, which had a total turnover of 2.3 billion in 2009, according to the CBS¹⁵. Applying a growth percentage of 1.8% as researched by ABN Amro (2011) results still in a rounded off turnover of 2.3 billion euro in 2010. It was kind of a surprise that passenger shipping on inland waterways takes such a large share of the total turnover of inland shipping and is still quite unknown and overlooked by policy makers.

15 CBS: Bedrijfsleven; arbeids- en financiële gegevens, per branche, SBI 2008

The most important issues following from the SWOT analysis of chapter 5 are divided into four groups: Flexibility, Innovation, Inability to unite and government. The **flexibility** of services offered by the sector is a strength but also causes problems. It is a strength because customers can be served at different places. However, flexibility of the services makes competition fierce, as all ships can sail everywhere, it is hard to ‘capture’ a part of the market. Secondly, with the upcoming sewerage regulations flexibility will cause problems, as facilities to discharge wastewater are not flexible and also hardly available. In the long run **innovation** and investments are of the utmost importance for every sector, so passenger shipping companies should focus more on innovation, to secure the future of the sector. The most important recommendation for the sector is to try to **unite** itself more, in order to attract more attention from policy makers and to be able to influence decision-making, although it is acknowledged that it is quite hard to tackle the free-riding problem. There is not a lot of contact with **governments** on national and supranational level. Most times individual companies have contacts with local authorities, but as the sewerage example indicates, also here contact is not always experienced as positive. It is striking that the sector is often ignored or overlooked.

To summarize shipping on inland waterways deserves more attention from policy makers. It might not be a key sector for the Dutch economy, but looking to the sector as a part of inland shipping shows that it is more important than one would think looking to the attention the sector gets in the media and from policy makers.

6.2 Limitations & Recommendations

This research has some limitations, which result in recommendations for further research. To show the limitations the methodology table from chapter 3 is presented and discussed again.

Research Methodology	Direct	Indirect – backward	Indirect – forward
Day trips	questionnaire shipping companies (multiplied by 1.7)	CBS input/output multiplier 1,62	CBS input / output multiplier 1,32
Hotel Cruises	Equation:	CBS input / output multiplier 1,62	questionnaire port officials
	1500 (# trips) x 7 (duration in days) / 225 (# sailing days) x € 2.25 million (turnover) Correction: 0.8		ship movements x time in ports x # passengers (125) x Spending of passengers (€ 44)
Charter Sailing	Data BBZ	CBS input / output multiplier 1,20	Data BBZ

Table 6.2 Research Methodology *Source: Own Elaboration*

The limitations of the research will be discussed using table 6.2.

Because of the earlier mentioned bias in the non-response the direct economic impact of the day trip segment might not be totally correct. It was tried to correct for the non-response, but this is of course only an estimation. It is recommended to update this research once in a few years, so that results will become more reliable, as other companies might respond a next time. With respect to the backward effects it should be noted that they are based on CBS data, but that the actual sector is not present in the CBS database. For this reason a combination of three other sectors was made. This might result in figures that are not totally correct. The forward effects are not fully researched regarding the day trip segment, because it turned out to be quite difficult to determine them. Now only supplies to other sectors are taken into account, and not the related spending of customers, which are also called sideward effects. Only extensive research among customers could shed more light on this topic. Even then it is questionable whether a reliable figure will be found, as it is quite hard to isolate a single product from the total touristic product. This is much more easy when an attraction

or product is temporary closed, or when an attraction is only temporary available, like an event, as only in those cases one can see the effect of this attraction or product on other parts of tourism related spending, assuming *ceteris paribus*. Otherwise, the best one can get is an estimation, using stated substitute behaviour and expenditures from customers (Johnson & Moore, 1993).

The most important limitation is that the research into the direct economic impact of river cruises was very limited. Only a few companies were taken into account and the economic impact of this segment is only estimated. Both the number of trips, the trip duration, the number of sailing days and the average turnover are only estimations. It is recommended to research the European river cruise market as a whole, so that results will become more reliable, as other companies might respond a next time. With respect to the backward effects it should be noted that they are based on CBS data, but that the actual sector is not present in the CBS database. For this reason a combination of three other sectors was made. This might result in figures that are not totally correct. Regarding forward effects there are also some limitations. As not all ports responded to the questionnaire, it was impossible to give a total overview of the forward effects. Furthermore, the spending of passengers on hotel ships should be researched more to create more reliable figures on this matter. The same goes for the average time in ports and the average number of passengers per ship.

With respect to charter sailing data from the BBZ was used. This yields a limitation, because it could not be exactly checked whether their methodology is correct. Also here there is an incentive for overstating the results. With respect to the backward effects it should be noted that it is argued that they are 'small' in the case of charter sailing. Than just the multiplier of a sector from the CBS databases with the smallest backward effects was taken. This might yield that the numbers are not totally correct.

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Annexes

Annex 1 – Questionnaire

The questionnaire below consists all questions that were sent to 114 shipping companies. It turned out to be impossible to show the actual layout, as the survey was conducted via internet. The layout of this survey could not be copied into a PDF-document.

Economisch Belang Passagiersvaart

Fijn dat u wilt meewerken aan dit onderzoek! Om het economisch belang van de passagiersvaart zo goed mogelijk in kaart te brengen is het van belang dat u de vragen zo compleet mogelijk invult. Het is de bedoeling om door middel van dit onderzoek de passagiersvaart op de politieke agenda te krijgen. Hoe beter de enquête wordt ingevuld, hoe relevanter de resultaten zullen zijn! Ook zou een goed ingevulde enquête mij geweldig helpen met mijn afstuderen.

Belangrijk om te vermelden is dat er nooit informatie over individuele bedrijven gepubliceerd zal worden. De informatie die u aanlevert zal slechts gebruikt worden voor een totaalbeeld van de sector. U hoeft dus niet bang te zijn dat bedrijfsgevoelige informatie op straat zal komen te liggen of gebruikt zal worden voor andere zaken dan dit onderzoek. Ook zal niemand, behalve ondergetekende inzicht krijgen in de verstrekte gegevens. Omdat we graag de meest recente gegevens willen hebben, wordt overal gevraagd naar de cijfers over 2010. Mocht u deze nog niet hebben, dan wil ik u verzoeken de cijfers over 2009 te gebruiken.

Mocht u tijdens het invullen van de enquête vragen hebben, kunt u altijd contact opnemen via h.plaisier@binnenvaart.nl tel: 010 - 798 98 00. Als u een vraag niet kunt invullen wilt u dan een ‘-’ invullen? Mocht u opmerkingen of toelichting willen geven op een vraag, dan is daar aan het eind van ieder blok ruimte voor.

Alvast hartelijk dank voor uw medewerking!

Hans Plaisier

Algemeen

1. Wat is de naam van de rederij? *Open veld*
2. Onder welke categorie zou u uw rederij plaatsen? (meerdere antwoorden mogelijk) Rondvaart/charters en evenementen/anders namelijk *Meerkeuze*
3. Waar is de rederij gevestigd? *Open veld*
4. Wat is het belangrijkste vaargebied van de rederij? *Open veld*
5. Hoeveel schepen telde uw vloot in 2010? *Getal*
6. Wat is de capaciteit per schip? (De maximale theoretische capaciteit volgens het certificaat van onderzoek) *Getal, 15 vakken*
7. Wat is de verzekerde waarde per schip (Indien u niet de verzekerde waarde per schip kunt aangeven, kunt u ook de totale verzekerde waarde van alle schepen bij elkaar aangeven)? *Bedrag, 15 vakken+ 1 vak voor het totaal*
8. Open veld voor vragen en opmerkingen

Passagiers en vaartochten

Voor een juiste bepaling van het economisch belang van de sector is het niet alleen van belang te weten hoeveel rederijen en schepen er zijn, het is ook van belang hoe actief deze rederijen zijn en hoeveel passagiers ze vervoeren. Vandaar een aantal vragen over het aantal vaartochten en het aantal vervoerde passagiers. Mocht u geen exacte cijfers paraat hebben, dan is een schatting ook heel nuttig!

9. Hoeveel passagiers ontving u in 2010? ***Getal***

10. Hoeveel individueel te boeken vaartochten korter dan 2 uur werden er in 2010 door de rederij georganiseerd? ***Getal, deze vraag niet indien bij vraag 2 niet 'rondvaart' wordt aangekruist***

11. Hoeveel individueel te boeken vaartochten langer dan 2 uur werden er in 2010 door de rederij georganiseerd? ***Getal, deze vraag niet indien bij vraag 2 niet 'rondvaart' wordt aangekruist***

12. Hoeveel chartervaarten organiseerde uw rederij in 2010? ***Getal, deze vraag niet indien bij vraag 2 niet 'charters en evenementen' wordt aangekruist***

13. Open veld voor vragen en opmerkingen

Personeel

Hieronder een aantal vragen over personeel. Wij willen u verzoeken het aantal personeelsleden uit te drukken in fulltime equivalents (FTE), zodat de totale werkgelegenheid waarin de sector voorziet gemakkelijk berekend kan worden. Het aantal FTE is het aantal werkzame personen uitgedrukt in eenheden van 40 uur per week. FTE's worden gerekend op jaarbasis. Als iemand dus een half jaar lang 40 uur per week bij de rederij werkte is dat 0,5 FTE. Mocht u niet kunnen aangeven hoeveel personeel u in dienst had, wilt u dan in ieder geval de loonkosten invullen, zo mogelijk per categorie.

14. Hoeveel nautisch personeel was er in 2010 in dienst bij de rederij (Inclusief eventuele ZZP'ers)? ... FTE ***Getal***

15. Hoeveel horeca- en facilitair personeel werkte er in 2010 bij de rederij? ... FTE (Denk aan: Barpersoneel, koks en schoonmakers. Alleen het personeel dat u zelf in dienst hebt, dus niet het personeel dat via een catering- of schoonmaakbedrijf voor u werkt.) **Getal**
16. Hoeveel kantoorpersoneel werkte er in 2010 bij de rederij? ... FTE (Denk aan administratie, management, maar ook technisch personeel en kaartjesverkopers) **Getal**
17. Wat waren in 2010 de loonkosten per categorie?

Nautisch	Bedrag
Horeca en Facilitair	Bedrag
Kantoor	Bedrag
Uitzendkrachten	Bedrag
Totaal	Bedrag

18. Open veld voor vragen en opmerkingen

Omzet

Uiteraard is voor de bepaling van het economisch belang kennis over de totale omzet van de sector noodzakelijk. Om nogmaals te benadrukken: De gegevens die u invult zullen nooit gekoppeld aan uw bedrijfsnaam worden gepubliceerd en zullen ook voor geen ander doel gebruikt worden dan voor dit onderzoek.

19. Wat is de totale omzet van de rederij over 2010? **Bedrag**

20. Kunt u aangeven welk percentage van de omzet in de volgende categorieën valt?

Kaartverkoop rondvaart ... %

Getal tussen 0 en 100

Huuropbrengst charters en evenementen ...%

Getal tussen 0 en 100

Productpresentaties... %

Getal tussen 0 en 100

Horeca rondvaart ... %

Getal tussen 0 en 100

Horeca charters en evenementen ... %

Getal tussen 0 en 100

Horeca productpresentaties ... %

Getal tussen 0 en 100

Merchandising & Souvenirs ... %

Getal tussen 0 en 100

Overig ... %

Getal tussen 0 en 100

Mogen ook bedragen zijn

21. Indien van toepassing, wat was in 2010 de laagste prijs voor een toegangkaart? *Bedrag, Vraag alleen indien bij vraag 2 'rondvaart' wordt aangekruist*

22. Indien van toepassing, wat was in 2010 de hoogste prijs voor een toegangkaart? *Bedrag, Vraag alleen indien bij vraag 2 'rondvaart' wordt aangekruist*

23. Open veld voor vragen en opmerkingen

Afsluiting

Omdat we graag een zo compleet mogelijk beeld willen krijgen van de sector vindt u hieronder nog een afsluitende vraag over rederijen in de omgeving en hebt u nog de mogelijkheid tips en opmerkingen te geven. Voor de vraag over de jaarrekening geldt uiteraard weer: Het enige waarvoor deze gebruikt zal worden is voor dit onderzoek en uw gegevens zullen nooit in combinatie met de bedrijfsnaam worden gepubliceerd.

24. Kunt u in de omgeving van uw eigen rederij nog andere rederijen noemen? (Graag naam en vestigingsplaats vermelden) **10 x 2 vakken**

25. Bent u bereid een kopie van uw meest recente jaarrekening te verschaffen, zo ja wilt u dan zo vriendelijk zijn deze te e-mailen naar h.plaisier@binnenvaart.nl of opsturen naar het CBRB (Postbus 23133, 3001 KC Rotterdam)? **Ja/nee en toelichting**

26. Zijn er nog zaken die naar uw mening meegenomen moeten worden in dit onderzoek, maar niet aan bod zijn gekomen in deze enquête?
Open veld

27. Mochten er nog vragen zijn naar aanleiding van uw antwoorden, tot wie kunnen wij ons dan wenden? **Naam, e-mailadres, telefoonnummer**

Hartelijk dank voor uw medewerking!

Annex 2 – Discussion Partners

The discussion partners as mentioned in chapter 5 were:

Alexander de Vries (CEO rederij Denick)

Annie Gruisen (CEO Spido)

Ed Tonissen (CEO rederij Tonissen)

Edwin Petersen (CEO Oceandiva)

Hans Heijmen (CEO Constant in Beweging, CBRB)

Hans Teerlink (CEO Rederij Eureka, CBRB)

Leon Schuller (CEO Zilvermeeuw, CBRB)

Liesbeth Schepers (Amsterdam Cruise Port)

Maira van Helvoirt (Secretary passenger shipping CBRB)

Nico Arnts (CEO Feenstra Rijnlijn, CBRB)

Ramon van der Storm (Secretary VAR and CEO Amsterdam Canal Cruises)

Remco Doorn (Chairman VPAH)

Siena Uijen (CEO rederij Kool)

Vincent Geljon (Chairman VAR and CEO Blue Boat Company)

Annex 3 – Economic Impact including Ferry Services

Economic Impact Passenger Shipping including Ferry Services					
Economic Impact	Day trips	Hotel Cruises	Charter Sailing	Ferry services	Total
Turnover	€ 98.639.698,40	€ 84.000.000,00	€ 53.403.500,00	€ 27.400.000,00	€ 236.043.198,40
Backward Effects	€ 61.156.613,01	€ 52.080.000,00	€ 10.680.700,00	€ -	€ 123.917.313,01
Added Value	€ 37.483.085,39	€ 31.920.000,00	€ 42.722.800,00	€ -	€ 112.125.885,39
Forward Effects	€ 28.605.512,54	€ 34.432.750,00	€ 33.303.600,00	€ -	€ 96.341.862,54
Total Economic Impact	€ 127.245.210,94	€ 118.432.750,00	€ 86.707.100,00	€ 27.400.000,00	€ 359.785.060,94
Employment		TO cruises without overnight stays derived from questionnaire			
Day Trips	1173 FTE	TO hotel cruises estimated based on information from sector			
Charter Sailing	1029 FTE	TO and forward effects charter sailing based on BBZ research			
Ferry services	612 FTE	FE cruises without overnight stays based on CBS data			
Total Employment	2814 FTE	FE hotel cruises derived from questionnaire			
		BE are based on CBS data			
		E cruises without overnight stays based on questionnaire			
		E brown fleet based on BBZ research			
		TO Ferry services derived from Den Hartogh (2010) (Figures 2009)			

Table 1 Economic Impact Passenger Shipping with Ferry services included

Source: Own elaboration