

Mersey Maritime

Economic Impact Study

Final Report

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1 Executive Summary

This report identifies the contribution of the maritime sector to the Merseyside economy. The contribution is based on the direct, indirect and induced economic impacts.

The maritime sector includes: Building repair and maintenance of ships; Cargo handling; Education, training and skills; Engineering and fabrication services; Other specialist sectors; Port operations; Professional services; Royal Navy; Shipping, freight & forwarding agents and brokers; Storage & warehousing; Transport by land and air; Transport by sea; Wholesale distribution. Where companies undertake only part of their business in the maritime sector, only a proportion of their activity is assessed for contribution purposes.

The methodology relied on a combination of questionnaires, interviews, database interrogation, and benchmarking using other port economic impact studies.

The analysis shows that 1,001 limited companies are located in or near the local area and involved in the maritime sector in Merseyside. The largest concentrations of maritime-related businesses are in Liverpool, Sefton and Wirral.

The economic impact of the maritime sector on the economy of Merseyside in 2004/05 is summarised below:

Impact measure	Direct effects	Indirect / induced effects	Total impact
Output (£m)	1,974	560	2,534
Gross value added (£m)	710	203	913
Household income (£m)	543	155	698
Employment (FTE employees)	20,543	5,898	26,441

The maritime sector is estimated to have contributed £710m in direct gross value added (GVA) in 2004/5 and £203m in indirect and induced GVA to the local economy. It is likely that the maritime sector accounts for about 5% to 5.5% of GVA in Merseyside, which makes it of similar importance to the construction sector.

Gross value added per employee is £34,600 for maritime-related activities compared to about £26,000 for Merseyside in general. The maritime sector in Merseyside offers relatively high value added jobs.

The positive attributes of the area that retain businesses in Merseyside include: the availability of staff; expertise and services; the proximity to ships and customers; transport infrastructure. Problems they face however include costs and increasing road traffic congestion.

All responding companies had a positive outlook. Most were planning investment in Merseyside and predicted growth in turnover and employees.

2 Introduction

2.1 Background

Fisher Associates was appointed by Mersey Maritime to assess the economic impact of the maritime sector on the Merseyside economy. The objective was to identify the impacts in terms of GVA and employment, and to place these in the context of the Merseyside economy.

This report is structured as follows:

- ❖ This section explains economic impact, and defines the local area for study.
- ❖ Section 3 details the approach.
- ❖ Section 4 presents the results in terms of number of number of companies, GVA, employment, and mapping these onto local authorities.
- ❖ Section 5 discusses future steps for developing better market knowledge.
- ❖ Section 6 reviews literature used for benchmarking multipliers in Merseyside.

2.2 Definition of Economic Impact

The methodology for determining the economic impact of the maritime sector is based on a Keynesian multiplier approach. There are three main ways in which an investment or a level of economic activity has an impact:

Direct impact

This is the initial impact made by companies who are directly involved in the maritime sector in Merseyside. For them, if the port ceased to operate, then their businesses would be directly affected to some degree. For some, such as the port operators, it would be a major impact, for others such as the majority of road haulage companies the impact would be less severe. For each business, we have estimated the share of their overall business activity that is related directly to the maritime sector in Merseyside.

Indirect impact

Businesses involved in the maritime sector in turn inject money into the economy through spending on goods and services, and this generates an indirect impact. We use multipliers to estimate the size of this indirect impact. The size of the multipliers and the impact on the local economy, however, depend on the extent to which these goods and services are sourced locally, i.e. the strength of the supply chain linkages, and the definition of the local economy.

Strong supply chain linkages in the local area mean less leakage through companies sourcing their inputs elsewhere. The size of the local economy is also important, as the larger the geographical area, the lower the leakages are likely to be. Thus the impact on the economy of the Northwest or northern England would be higher than the impact on the economy of Merseyside. Maritime companies will source some of their supplies from other companies involved in the maritime sector; hence there is some overlap between the direct and the indirect impact.

Induced impact

The induced impact relates to the additional economic activity generated as a result of employees in the maritime sector spending their earnings, as they too buy goods and services. Again there will be leakages from the local economy as not all employees will live locally and not all their expenditure will be made to local companies.

Measuring economic impact:

The economic impact is measured in four main ways:

- Economic output – taken from turnover.
- Value added – this reflects wealth created and is defined as sales less the cost of bought-in goods and services.
- Employment – expressed in the number of full-time equivalent jobs.
- Household income – the wages, salaries and other payments made to employees.

These measures are separate ways of presenting economic impact. They cannot be added together to provide a total figure.

2.3 Definition of the Local Economy

For the purposes of this study the local economy was defined as the six boroughs of: Liverpool, Sefton, Knowsley, St Helen's, Wirral and Halton as shown in Figure 2.1 below.

Figure 2.1: Definition of the local economy



We used postcodes to map businesses onto the boroughs and, where a postcode area spanned more than one borough, we used the borough that encompassed most of the postcode area. The postcodes assigned to each borough are shown in Table 2.1.

Table 2.1 Postcodes mapped to boroughs

Liverpool	Sefton
L1 – L19	L20 – L23
L24	L29 – L31
L27	L37 – L38
L69	L40
	PR8 – PR9
Knowsley	St Helen's
L10	WA9 – WA12
L25 – L26	WN4 – WN5
L28	
L32 – L36	
Halton	Wirral
WA7 – WA8	CH41 – CH49
	CH60 – CH66

We have also included some companies that are based outside the local area; these are companies that are members of Mersey Maritime, or that were identified in the Merseyside Maritime Mapping Study¹ as having links with the ports in Merseyside, and they represent 17% of the companies. Their impact on the local economy is diluted, however, as a smaller proportion of their business is assumed to be in maritime in Merseyside, than for local companies, and we have assumed that none of their employees lives in the 6 boroughs above. This is likely to lead to a conservative estimate of their impact.

¹ *Merseyside Maritime Cluster Mapping Study*, Fisher Associates in association with CI Research

3 Our Approach

3.1 Methodology

The methodology relied on distributing questionnaires to all Mersey Maritime members (over 500), and following up with interviews with around 60 companies. The companies for interview were selected to ensure a cross section by activity and location. The information sought included:

- ❖ Financial and employment data related to maritime activity in Merseyside.
- ❖ An indication of the percentage of goods and services that are sourced within the local economy.
- ❖ The number of employees who live locally.
- ❖ Feedback on the importance of Merseyside to the company's business and its future outlook.

The questionnaire responses would then be used, in conjunction with earlier mapping work, to gross up to cover all the companies in the sector. Unfortunately most companies proved reluctant to divulge the information required. In particular, companies preferred not to give any financial data, therefore the request was modified with a simplified calculator for value-added, based on the DTI approach (see 2.2), but this still did not encourage responses. The interview programme was similarly constrained, and although some companies were very forthcoming others were not.

The questionnaires received and interviews undertaken have provided useful contextual data, but companies provided insufficient responses (some without financial data) to develop statistically robust conclusions. Based on consultation with Mersey Maritime the methodology was revised.

The practical solution was to compile a database of maritime-related companies in Merseyside, and then use benchmarks to obtain economic impacts:

- ❖ The database of companies was based on: a combination of Mersey Maritime members; earlier mapping work that identified companies in Merseyside and NW England; and searching on-line company databases based on 'keywords'. The latest financial and employee data was then obtained for those companies who publish their accounts and this was supplemented with older data.
- ❖ Information on multipliers from a literature review of several port economic impact studies was used to benchmark multipliers for the indirect and induced benefits.

3.2 Definition of Activities

We used Mersey Maritime's classification of business activity to report the economic impact by activity. This is shown in Table 3.1, together with the sub-categories that are included under that heading. To avoid double counting, companies whose activities covered more than one category were assigned only to the main activity.

For those companies that are not members of Mersey Maritime, we were guided by the ‘trade description’ given with their listing or checked on the internet for their areas of expertise.

Table 3.1 Activity classification

<p>Building repair and maintenance of ships</p> <ul style="list-style-type: none"> Boat builders and repairers Marine engineering Ship builders and repairers <p>Cargo handling</p> <ul style="list-style-type: none"> Crane supply, hire and sales Handling equipment maintenance, sales and hire Stevedores <p>Education, training and skills</p> <p>Engineering and fabrication services</p> <ul style="list-style-type: none"> Engineering services Marine electrical, mechanical & electronic engineers Metal fabrication <p>Other specialist sector</p> <ul style="list-style-type: none"> Life rafts and safety equipment Marine chandlers Marine equipment suppliers Other specialist sector Underwater services Waste disposal – oil <p>Port operations</p> <ul style="list-style-type: none"> Port Health Authority Port operators Property development <p>Professional services</p> <ul style="list-style-type: none"> IT consultants Marine consultants & surveyors Marine insurance and legal services <p>Royal Navy</p> <p>Shipping, freight & forwarding agents and brokers</p> <p>Storage & warehousing</p> <ul style="list-style-type: none"> Bulk liquid handling Container repair, hire and sales Packaging and storage materials Packers – export Warehousing & export packers – Freeport and general <p>Transport by land and air</p> <ul style="list-style-type: none"> Tanker supply, repair and cleaning Trailer rental Transport by air Transport by road Transport by rail <p>Transport by sea</p> <ul style="list-style-type: none"> Ligherage / tank barge operators Ship owners & managers Towage & pilotage <p>Wholesale distribution</p>
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3.3 Calculation of Gross Value Added

Value added for a company is defined as sales less the cost of bought-in goods and services. The Department of Trade and Industry (DTI) recommends using the following formula to obtain value added from published company accounts:²

$$\text{Value added} = \text{operating profit} + \text{employee costs} + \text{depreciation} + \text{amortisation}$$

Where we did not have the data to use the above formula we either made an estimate based on the data that was available, or if there was no financial data, we used an assumed value added of £50,000 per company.

We then applied percentages to determine the share of each company's business attributable to maritime activities in Merseyside. These were developed from the questionnaire responses received, and the NW and Merseyside mapping work. Where no specific figures were available for companies, we used the average for that activity, with the exception of companies that were based outside the region, where we used an arbitrary 5%.

3.4 Employment and Output

Employment data at the company level was similarly taken from company accounts and previous work. For companies with no employment data, we took one of two approaches: where there was wage data, we took wages divided by an average wage of £23,600 (estimated from companies for whom we had both wage and employee data); for companies with no data, we assumed that they had 5 employees.

With output, where there was no turnover data we assumed turnover = wages x 2.5 (based on an estimate of the proportion of bought-in goods and services out of turnover). Otherwise we used the number of employees x average wage x 2.5.

3.5 Multipliers

The interviews and questionnaires revealed that there is a large amount of interaction between the different activities in the maritime sector. However, the percentages of sales to other companies in Merseyside, as opposed to elsewhere in the UK, vary enormously as does the volume of inputs sourced locally. The limited responses to the questionnaires mean that we cannot use the data in determining our multipliers because it is not statistically significant. We have therefore based our multipliers on the English Partnerships (EP) guidance (see Section 6.1 below) and adjustments made to them benchmarked from other studies.

In the Bristol port study (see Section 6.2) the EP local multiplier of 1.29 was used. If we were to use the EP 'ready reckoner' and assume that the supply chain linkages and income effects are average, then the multiplier would be between the neighbourhood figure of 1.1 and the regional figure of 1.5. On this basis, we followed the Bristol example and used the local multipliers of 1.29 for all activities except wholesale, which is 1.21.

² www.innovation.gov.uk/value_added/calculator.asp

In a study of the economic impact of the cruise industry on Southampton (see Section 6.7 below), the multipliers were also pitched between the EP local and regional multipliers, to reflect the size of the area influenced. The Southampton study area included Hampshire and the Isle of Wight. The multipliers used in the Southampton study are higher than those that we have used, reflecting the fact that Merseyside is a relatively smaller area.

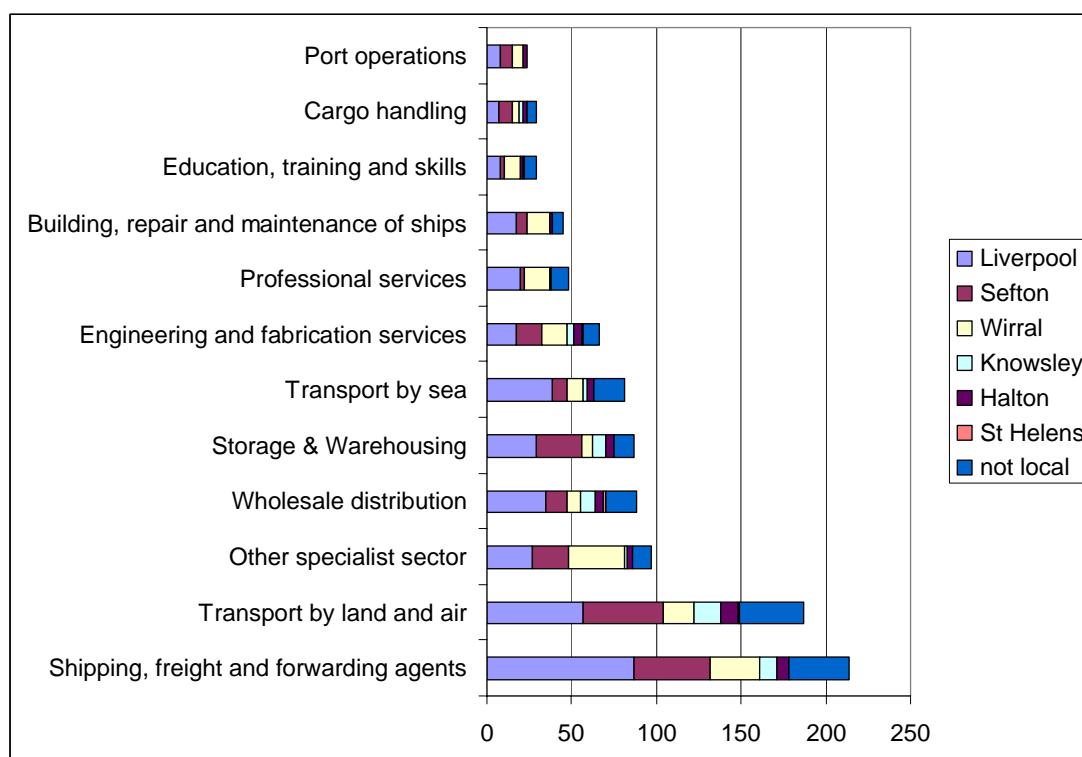
4 Economic Impact

4.1 Number of Companies

The analysis shows that 1,001 limited companies are located in or near the local area and involved in the maritime sector in Merseyside. This finding is restricted to limited companies reporting to Companies House, and there are likely to be additional sole traders and partnerships also engaged in the maritime sector.

The largest category is shipping agents and freight forwarding agents with 214 companies, and transport by land and air, which is predominantly road hauliers, is second with 187 companies. Figure 4.1 shows the breakdown of companies by activity and local authority.

Figure 4.1: Number of companies related to the maritime sector in Merseyside, by activity and local authority



The largest concentrations of maritime-related businesses are in Liverpool, Sefton and Wirral. This would be expected given the concentration of maritime commerce in the City of Liverpool, and the proximity of these areas to the main port facilities.

4.2 Total Impact

Table 4.1 summarises the economic impact of the maritime sector on the economy of Merseyside. It is estimated to have contributed £710m in direct gross value added (GVA) in 2004/5 and £203m in indirect and induced GVA to the local economy. GVA for Merseyside in 2003 was about £16 billion³.

Maritime has grown considerably in recent years, both in terms of port activity and maritime services⁴. Although the figures are not directly comparable, it is likely that the maritime sector accounts for about 5% to 5.5% of GVA in Merseyside. This makes it of similar importance to the construction sector (5.5% of GVA in 2003).

Table 4.1 Economic impact of maritime sector on the economy of Merseyside, 2004/05

Impact measure	Direct effects	Indirect / induced effects	Total impact
Output (£m)	1,974	560	2,534
Gross value added (£m)	710	203	913
Household income (£m)	543	155	698
Employment (FTE employees)	20,543	5,898	26,441

Employment in Merseyside in 2002 was 585,000. Hence, the maritime sector accounts for about 3.5% of local employment. Gross value added per employee is £34,600 for maritime-related activities compared to about £26,000 for Merseyside in general.

The maritime sector in Merseyside offers relatively high value added jobs. For comparison, GVA per employee in manufacturing for the UK as a whole was £41,350 in 2004⁵ and in transport, storage and communication was £27,260 per employee.

³ *Merseyside Economic Review, 2006* TMP

⁴ See *Port Growth Strategy*, Mersey Maritime, 2006

⁵ *The Blue Book 2005*, Office of National Statistics

4.3 Employment by Activity

As shown in Table 4.2, 24% of all employees directly employed in the maritime sector are engaged in shipping and freight forwarding and 18% in transport by land and air. This is in line with the number of companies in these activities.

Table 4.2 Employment by activity (number of full time equivalent employees)

Impact measure	Direct impact	Indirect / induced impact	Total employment
Shipping, freight and forwarding agents	5,004	1,451	6,455
Transport by sea	3,722	1,079	4,802
Other specialist sector	2,398	695	3,094
Port operations	2,052	595	2,647
Transport by land and air	2,013	584	2,597
Cargo handling	1,645	477	2,122
Building, repair and maintenance of ships	1,085	315	1,399
Storage & warehousing	934	271	1,205
Wholesale distribution	740	155	896
Engineering and fabrication services	563	163	726
Professional services	341	99	439
Education, training and skills	45	13	58
Total	20,543	5,898	26,441

The fourth largest employer is port operations, which has the fewest number of companies, highlighting that they are significant employers. The number of employees in education and training establishments who are involved in the maritime sector is difficult to gauge from accounting data and industry averages.

It is estimated that a further 5,900 local jobs are created indirectly as a result of spending by maritime companies and through the income spent by employees.

4.4 GVA by Activity

Table 4.3 shows GVA by activity, with the greatest contribution being made by port operations.

Direct GVA per employee in some activities, such as port operations, is higher than others - £73,900 compared to £20,400 in shipping, freight and forwarding agents. Note however that the former includes property development, which is a high value, low employment activity.

Given the assumptions that were required to fill in the data gaps for the smaller companies that do not have to file accounts, it is inadvisable to place too much accuracy on the individual figures, but they provide an indication of the relative contributions made by the different activities.

Table 4.3 Gross value added by activity, (£'000)

Impact measure	Direct GVA	Indirect / induced GVA	Total GVA
Port operations	151,660	43,981	195,641
Transport by sea	137,000	39,730	176,730
Cargo handling	135,797	39,381	175,178
Shipping, freight and forwarding agents	102,017	29,585	131,602
Other specialist sector	66,833	19,383	86,215
Transport by land and air	36,313	10,531	46,844
Wholesale distribution	30,507	6,407	36,914
Storage & warehousing	21,308	6,179	27,487
Building, repair and maintenance of ships	14,817	4,297	19,114
Professional services	7,457	2,162	9,619
Engineering and fabrication services	5,654	1,640	7,294
Education, training and skills	609	177	786
Total	709,972	203,453	913,424

4.5 Mapping to Local Authorities

Table 4.4 and Table 4.5 show the breakdown of employment and GVA by local authority. 46% of people employed in maritime are located in businesses with their office address in the City of Liverpool, 18% in Sefton and 14% in Wirral.

Table 4.4 Employment by local authority (no. full time equivalent employees)

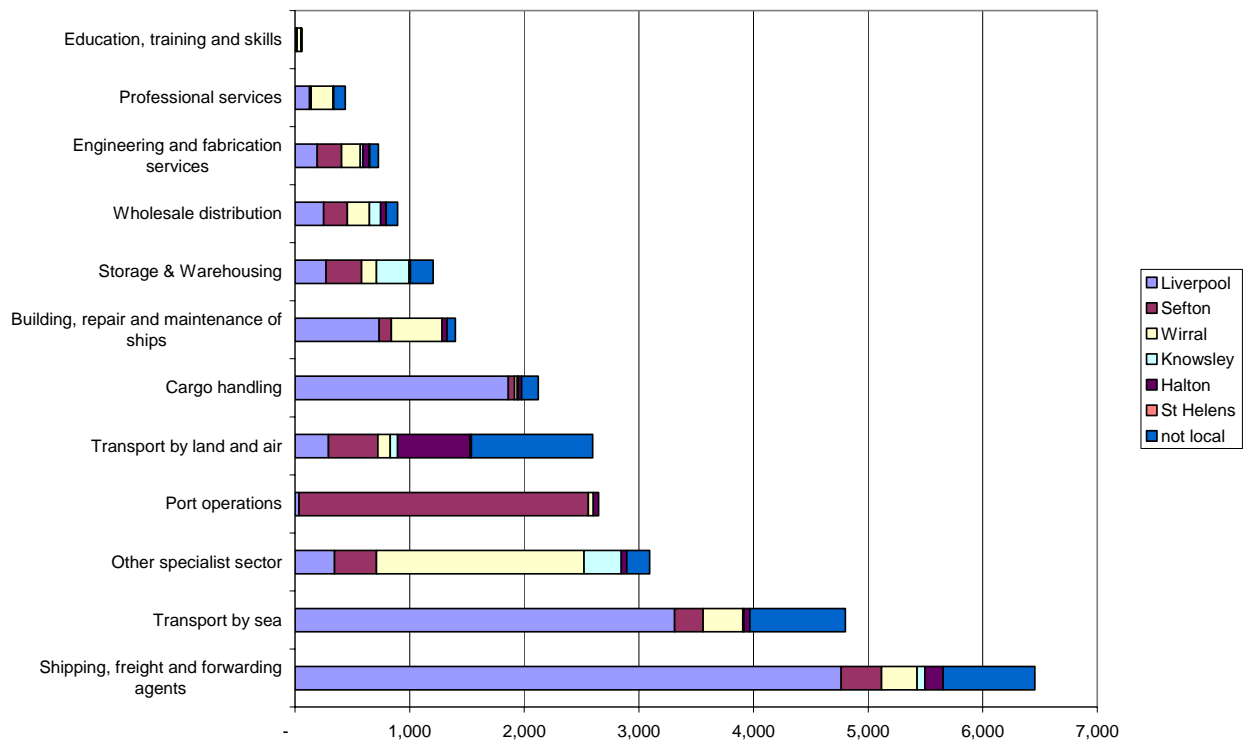
Local area	Direct impact	Indirect / induced impact	Total employment
Halton	876	251	1,127
Knowsley	691	194	885
Liverpool	9,469	2,729	12,198
Sefton	3,754	1,075	4,829
Wirral	2,951	843	3,794
St Helens + non local	2,801	806	3,607
Total	20,543	5,898	26,441

Table 4.5 GVA by local authority (£'000)

Local area	Direct impact	Indirect / induced impact	Total employment
Halton	30,646	8,777	39,423
Knowsley	23,501	6,710	30,211
Liverpool	314,517	90,793	405,310
Sefton	189,016	54,104	243,121
Wirral	76,287	21,113	97,400
St Helens + non local	76,005	21,955	97,960
Total	709,972	203,451	913,424

Figure 4.2 shows employment (direct and indirect/induced) by activity and local authority. The majority of employees working shipping and forwarding agents, transport by sea, and cargo handling are based in the City of Liverpool, whereas port operations dominate in Sefton.

Figure 4.2: Employment by activity and local authority



4.6 The Role of Maritime in Companies

Following presentation of the Draft Report, we were asked to examine how much of the GVA generated by businesses whose activities include maritime had been attributed to the maritime sector. The following table gives the breakdown by activity. The sectors with the lowest share of their business allocated to maritime are wholesale distribution, transport by land and air and engineering and fabrication services. The highest, as expected, is port operations.

Table 4.6 Contribution of maritime to overall business (£'000)

Direct value added (£'000)	Maritime	Not Maritime	Maritime	Not Maritime
Building, repair and maintenance of ships	14,817	11,545	56%	44%
Cargo handling	135,797	198,740	41%	59%
Education, training and skills	609	2,949	17%	83%
Engineering and fabrication services	5,654	45,496	11%	89%
Other specialist sector	66,833	105,283	39%	61%
Port operations	151,660	11,263	93%	7%
Professional services	7,457	5,170	59%	41%
Shipping, freight and forwarding agents	102,017	340,900	23%	77%
Storage & Warehousing	21,308	50,064	30%	70%
Transport by land and air	36,313	183,361	17%	83%
Transport by sea	137,000	101,756	57%	43%
Wholesale distribution	30,507	275,205	10%	90%
Total	709,972	1,331,731		

It should be noted that the companies included in this analysis are those that are considered to have a presence in the maritime sector. There will be many other companies in the above categories that have not been included at all because they are not involved in maritime.

4.7 Location Quotient

The location quotient indicates the concentration of a sector within a region compared to that sector's importance nationwide. The calculation is:

$$\frac{(Regional\ employment\ in\ sector / Total\ regional\ employment)}{(National\ employment\ in\ sector / Total\ national\ employment)}$$

A location quotient of <1 means that the sector cannot meet local demand, if it =1 then it meets local demand, and if it is >1 then its goods and services are exported outside the local economy by the amount that the local ratio exceeds the national ratio.

The results for the maritime sector in Merseyside are shown below.

A location quotient of 4.5 indicates that the maritime sector is relatively significant in the economy of Merseyside compared to the national economy. It also illustrates that the maritime sector in Merseyside is an export industry in the local context. It is accepted that there are some issues concerned with the data relating to different years, but these will have a marginal impact on this conclusion.

Table 4.7 Location quotient

	('000)	Ratio
UK figures		
UK total number in employment (2005)	28,770	
UK maritime total (source Sea Vision UK)	250	0.0086
Merseyside figures		
Total employment (2004)	537	
Maritime employment (2004)	21	0.039
Location Quotient	4.5	

4.8 Qualitative Results

Although we were unable to use the questionnaires and the interviews to draw any quantitative conclusions about the strength of the multipliers and the size of the activities, they provided a useful insight into the importance of Merseyside to the businesses that responded.

There was a wide variation in the importance of being close to suppliers and / or customers - even within the same activity. Companies with a national infrastructure do not *rely* on an office in Merseyside, but then some of the smaller family businesses are not constrained to the Merseyside markets either. Shipping companies tend to prefer port locations, although it is not essential.

It was generally considered to be quite easy to source supplies and services outside the local area, and there do not appear to be any goods or services which the companies would find it useful to source locally that they cannot at present.

The positive attributes of the area that retain the businesses in Merseyside include:

- ❖ The availability of staff
- ❖ Expertise and services
- ❖ The proximity to ships and customers
- ❖ Transport infrastructure

Problems they face however include:

- ❖ Costs
- ❖ Increasing road traffic congestion

As for future prospects, all companies had a positive outlook. Most were planning investment in Merseyside and predicted growth in turnover and employees.

5 Discussion

Obtaining reliable data on economic impact for a local (as opposed to a national) geographical area is complex.

It is difficult to obtain data from companies themselves because they are reluctant to divulge the necessary detail en masse. This leads to reliance on statutory sources such as data held by Companies House, which misses the activities of non-limited companies. The data held by Companies House is itself patchy. The use of SIC codes, which is another source of centralised statistical data, is poorly suited to the maritime sector.

Mersey Maritime has determined that improving its knowledge and understanding of its market should be a long-term goal, and has therefore requested pointers to progressively achieving this. The conclusions of this work could therefore be progressively refined by:

- ❖ Developing a supplementary database of non-limited companies based on local sources and local knowledge.
- ❖ Obtaining financial data for those companies that do not publish their accounts.
- ❖ Refining the assumed percentages of each company's business that are attributable to the maritime sector in Merseyside.
- ❖ Obtaining more reliable employment data from The Mersey Partnership, based on the companies that have now been identified.
- ❖ Undertaking further research into the size of the local multipliers and the leakages from the local economy.

6 Literature Review

We carried out a review of other economic impact studies in the UK and overseas to compare the multipliers used for determining the indirect and induced effects, and to compare their approaches to obtaining the necessary information. There follows a brief summary of the approach and findings of each of the studies reviewed.

6.1 English Partnerships

The National Regeneration Agency, English Partnerships, has written a guide to assessing the additional impact of regeneration projects.⁶ This includes estimates of economic multiplier effects based on evidence from studies and research for four types of property-related project/activity: B1 Office, B2/B8 General industrial/warehousing, Recreation and Retailing. Their findings are presented in Table 6.1.

The multipliers in these tables are expressed as composite ones, i.e. they include the indirect and induced effects. For example if the supply linkage multiplier (indirect) was 1.1 and the income multiplier (induced) was 1.2, the composite multiplier would be 1.32 (i.e. 1.1 x 1.2). So, if a project created 100 jobs, then the multiplier effects would be 32 jobs, with a total impact of 132 jobs.

These figures are averages and the scale of the multipliers at the local level can vary a lot depending on the mix of economic activity in the local economy. A study carried out into the impact of a Toyota factory identified a composite employment multiplier of 1.6 for a regional area covering Derbyshire, Nottinghamshire, Leicestershire, Staffordshire and the West Midlands.

Table 6.1 Composite multiplier effect by type of area.

Project type	Local area	Region
B1 Office	1.29	1.44
B2 Industrial/ B8 Distribution	1.29	1.44
Recreation	1.38	1.56
Retailing	1.21	1.38

English Partnerships also produced a 'ready reckoner' which expresses ranges at the very local level and the regional level as seen in Table 6.2 below. They do not define neighbourhood, although the Office of National Statistics' Neighbourhood Profiles go down to local authority and ward level. The equivalent multipliers for Merseyside are therefore likely to be between the local area and regional multipliers given in these tables.

⁶ *Additionality Guide, September 2004*, English Partnerships

Table 6.2 Composite multiplier effects – ready reckoner

Level	Description	Neighbourhood level	Regional level
Low	Limited local supply linkages and induced or income effects	1.05	1.3
Medium	Average linkages. The majority of projects will be in this category	1.10	1.5
High	Strong local supply linkages and income or induced effects	1.15	1.7

6.2 Bristol Port

The South West of England Regional Development Agency commissioned an economic assessment of Bristol Port in 2004⁷ and its impact on the immediate sub-regional and regional area. The consultants undertook surveys of port users and the businesses on the port estate; of suppliers of goods and services to the port authority, users and tenants; of local businesses; and of major employers in the Greater Bristol area. This data was supplemented by desk research and reviews of official statistics and local plans/strategies.

The consultants used a ratio of 0.22:1 for “indirect” to “direct” jobs for port, transport and port-dependent employment, which they say conforms to the normal range considered in other research. For the multiplier for total indirect and induced effects, they followed English Partnerships’ advice (see above), which is that distribution/industrial uses have a multiplier of 1.29 at the local level and 1.44 at the regional level. The results are shown in Table 6.3 below.

Table 6.3 Economic impact of Bristol Port on employment

	Total	Multiplier
Port-related employment (number of jobs)		
Direct	5,938	
Multiplier effects	1,722	1.29
Total	7,660	
Other non-port related employment located within the Port Estate		
Direct	1,368	
Multiplier effects	397	1.29
Total	1765	

⁷ *Bristol Port Economic Assessment, March 2004*, Roger Tym and Partners with E.T. Laing

6.3 Port of London

The Port of London undertakes a periodic economic impact survey. The last update in 2004 concluded that Port of London terminals and related shipping activities and services provide direct employment for 30,306 people and a further 5,000 jobs are created indirectly. The Port adds £3.41 billion gross value to the economies of London and the East and South East of England annually.

Indirect impact was based on local purchasing activity, i.e. port operators and processors buy in services that are closely related to the port e.g. engineering, cargo handling, ship brokering, business and financial services. This leads to problems of double counting. The London study reduced this risk by excluding all impact of expenditure on bought-in goods and services from riverside boroughs where port activities are clustered. Also by excluding all likely indirect impact of the purchasing activities of Port and ship suppliers.

The study found that bought-in goods and services on average accounted for 62% of turnover of firms in the Port of London, with a range from Port and ship suppliers (67%) to Port operators and processors (61%). Sourcing patterns also showed that less than 10% of goods and services were sourced from riverside boroughs, and over 55% came from abroad.

The study used an induced multiplier of 1.13 based on assumption that 20% of net take home pay is spent locally, 10% in wider region.

6.4 Seattle Port

Cruise Study

In 2004, Seattle Port carried out a study into the economic impact of the 2003 cruise season at the Port of Seattle⁸. In 2003, the Port received 99 calls by cruise lines carrying 345,000 passengers.

The consultants carried out a programme of interviews with cruise lines and local vendors; sent out passenger and crew questionnaires; and referred to local economic data and cruise activity statistics.

They concluded that 1072 jobs in the State of Washington were created by the cruise sector and of these 530 were direct employment, 365 were indirect jobs and 177 were induced.

This employment generated nearly \$39m of local wages and salaries of which 35% was direct, 35% was induced and the remaining 30% was indirect.

Cruise activity generated \$124m in business revenue to local businesses supplying services to the cruise vessels, passengers and crew as well as to the airport-related businesses at Seattle-Tacoma International Airport. Most of this revenue (\$106.9m) was direct with the remainder being indirect.

⁸ *The Economic Impacts of the 2003 Cruise Season at the Port of Seattle, April 13, 2004*, John C. Martin Associates, LLC with assistance from Maritime Strategy International Inc.

Port study

The cruise study was followed in 2005 by a study into the economic impact of the Port of Seattle on the local and regional economy⁹. This used baseline impact data from personal and telephone interviews with 1150 firms and surveyed 1000 passengers.

Induced jobs were estimated using a personal earnings multiplier for the Seattle region, which was developed from the Regional Input-Output Modelling System of the Bureau of Economic Analysis. The results were as shown in Table 6.4 below.

Table 6.4 Economic Impact of the Port of Seattle

	Marine cargo	Implied Multiplier	Total	Implied Multiplier
Jobs				
Direct	9,681		115,835	
Indirect	5,804	1.60	51,308	1.44
Induced	2,707	1.28	27,319	1.24
Total	18,192		194,462	
Income (\$'000)				
Direct	480,650		3,006,498	
Re-spending	471,517	1.98	2,949,596	1.98
Indirect	103,173	1.21	795,863	1.26
Total	1,055,340		6,751,957	
Revenue (\$'000)	1,438,323		12,121,331	

6.5 Fremantle Port

The Port of Fremantle is Western Australia's largest general cargo port: in 1998/99 there were 1,771 commercial ship calls. In 1999, the Bureau of Transport Economics commissioned a study of the port as the basis for a framework for similar studies for other ports¹⁰.

⁹ *The 2003 Economic Impacts of the Port of Seattle, January 25, 2005*, Martin Associates.

¹⁰ *Fremantle Port, Its Economic Impact, 1999, Fremantle Port and Regional Impact of Ports, report 101*, Bureau of Transport Statistics, Canberra, March 2000

Data for the study was obtained from two main sources:

- input-output tables to estimate the inter-relationships between different port activities and their ‘flow-on’ (multiplier) effects,
- surveys of the 198 organisations involved in port-related activities.

Gross revenue was used to measure output. Value added was calculated as the sum of wages and salaries (including supplements), depreciation, interest, profit and net commodity/indirect taxes. Table 6.5 gives the multipliers in terms of the impact of an initial amount of output in the Fremantle port industry, for example, \$1 of output generates \$0.63 of value added. Employment represents the number of jobs (full time equivalent) per \$ million of output in port industry.

Table 6.5 Multipliers for Fremantle Port Industry, 1998-99

Impact Measure	Direct Effects	Flow-on effects	Total impact
Output (\$m)	1.00	1.14	2.14
Value added (\$m)	0.63	0.66	1.29
Household Income (\$m)	0.36	0.29	0.65
Employment (no.) ^a	7	10	17

^a Number of full time equivalent jobs per \$ million of output in port industry

Table 6.6 shows the overall impact of the port on the local and regional economies.

Table 6.6 Overall Economic Impact of the Port of Fremantle, 1998/99

Impact Measure	Direct Effects	Flow-on effects	Total impact
Output (\$m)	341	387	728
Value added (\$m)	215	225	440
Household Income (\$m)	124	99	223
Employment (no.)	2,294	3,499	5,792

Further analysis of the flow-on effects to individual industry sectors showed that the two sectors deriving the greatest benefits from the operation of the port were wholesale and retail trade (44% employment) and other business services (12% employment).

Analysis of the contribution by type of operation showed that of total impact:

- 30% came from ship loading and unloading (stevedoring, loading and unloading of bulk cargoes).
- 18% came from ship operations (e.g. shipping agencies, pilotage, towage, bunkering).
- 14% came from cargo services (e.g. freight forwarding, customs broking).
- 10-12% came from Port Authority operations.
- 3-4% came from Government Agencies.

6.6 Port of Geelong

The study of the economic impact of the Port of Geelong¹¹ was undertaken using the general framework for port impact studies developed by the Australian Bureau of Transport Economics as described in the Fremantle study above. Again the main sources of information were regional input-output tables and questionnaires sent out to port-related firms and organisations.

Table 6.7 and Table 6.8 give the multipliers in terms of the impact of an initial amount of output in the Geelong port industry, for example, \$1 of output generates \$0.63 of value added. Employment represents the number of jobs (full time equivalent) per \$ million of output in port industry.

Table 6.7 Multipliers for Geelong Port Industry, 2004/5 (local area)

Impact Measure	Direct Effects	Flow-on effects	Total impact
Output (\$m)	1.00	0.71	1.71
Value added (\$m)	0.52	0.35	0.87
Household Income (\$m)	0.20	0.17	0.37
Employment (no.)	3.6	3.4	7.0

The multipliers for the local area are smaller than for the Victoria region as would be expected because of the wider geographical coverage and hence additional linkages.

¹¹ *The Economic Impact of the Port of Geelong, 2004/05, September 2005*, EconSearch Pty Ltd.

Table 6.8 Multipliers for Geelong Port Industry, 2004/5 (regional level)

Impact Measure	Direct Effects	Flow-on effects	Total impact
Output (\$m)	1.00	0.93	1.93
Value added (\$m)	0.52	0.47	0.99
Household Income (\$m)	0.20	0.26	0.46
Employment (no.)	3.6	34.6	8.1

6.7 Southampton Cruise Tourism

The Southampton Partnership commissioned a study into the economic impact of cruise tourism on the port and the city¹². The consultants took a two-pronged approach of:

- Top down - interviews with cruise companies to estimate how much money was spent by companies in the local economy
- Bottom-up – for key businesses, obtaining direct estimates of employment supported by the cruise business.

The study found that leakages from the local economy were significant: Carnival is the dominant cruise company in Southampton, but only 26% of its expenditure in the UK was retained within Southampton, Hampshire and the Isle of Wight. Other cruise companies also have limited supplier companies in Southampton.

Table 6.9 Composite multipliers, Southampton cruise study

Activity type	Local area	Region	Estimated Southampton, IOW and Hampshire impact
B1 Office	1.29	1.44	1.36
B2 Industrial/ B8 Distribution	1.29	1.44	1.36
Recreation	1.38	1.56	1.37
Retailing	1.21	1.38	1.30

Multiplier effects for this study were also based on the English Partnerships guidance. The cruise industry (and the maritime sector as a whole) does not, however, fit easily into any of the broad categories used by English Partnerships. The consultants therefore estimated jobs generated by the cruise sector and then placed them in these broad categories e.g. office jobs or retail jobs. From this they

¹² *Southampton Cruise Tourism, April 2005*, TTC International and Roger Tym & Partners

produced the composite multipliers for the Southampton area shown in Table 6.9. The 'local area' and 'region' multipliers are the original English Partnerships figures for comparison.

6.8 Whitstable Harbour

Canterbury City Council undertook an analysis of the socio-economic impact of Whitstable Harbour on Canterbury District 13 in 2001. This was estimated using a multiplier approach and data was obtained from interviews with local companies, organisations in the harbour, local council, and visitors and residents of Whitstable.

¹³ *Whitstable Harbour Best Value Review, 2001*, Fisher Associates.