The economic contribution of the UK shipping industry

Oxford Economics

Final report

Winter 2007

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1. Executive Summary

Since the introduction of tonnage tax the UK shipping industry has grown substantially...

...and now directly employs 98,000 workers...

- The UK shipping industry directly employed around 98,000 employees in 2006. Of these 36% are UK officers or ratings, 10% UK shore based jobs and the reminder foreign nationals working as both officers and ratings.

- The UK shipping industry has grown significantly since the introduction of tonnage tax. Deadweight tonnage has grown from 7.2 million tonnes in 2000 (when tonnage tax was announced) to nearly 18 million by 2007.

- The UK shipping industry is a highly productive industry; each worker produces around 20% more GDP per person than on average across all manufacturing sectors in the UK.

...directly contributing around £5.2 billion a year to GDP...

- On a turnover of £9.8 billion, the UK shipping industry directly contributed around £5.2 billion to UK GDP in 2006. This means that the UK shipping industry contributed nearly as much to GDP as, for example, the advertising industry.

...and around £680 million to the Exchequer

- The UK shipping industry is estimated to have directly contributed about £680 million to the Exchequer in 2006 in income tax, national insurance contributions, VAT (and other indirect taxes) and tonnage tax. This is equivalent to 6% of the turnover in the UK shipping industry.

In total the UK shipping industry supports 239,000 jobs and contributes £11 billion a year to GDP...

- The UK shipping industry helps to support a total of 239,000 jobs allowing for those directly employed and for the multiplier effects.

- In total, the UK shipping industry contributes £11 billion a year to UK GDP, taking into account direct, indirect and induced impacts – equivalent to around 1% of UK GDP.

...and over £3.2 billion to the Exchequer

- The UK shipping industry and its employees overall contribution to UK tax revenues, including direct and multiplier impacts, was over £3.2 billion in 2006.
But the overall economic impact even greater...

- The UK shipping industry contributes to the economy and Exchequer in a number of other ways not captured by the direct and multiplier analysis discussed above.

- Ex UK-seafarers are important for many shore based jobs. For around 16,000 shore based jobs ex-seafarers are preferred, and of these for around half they are essential. Under the tonnage tax regime training of UK seafaring officers has increased from around 450 per year to nearer 650.

- London is a world leading centre in the provision of maritime services. Over 14,000 people are employed in this sector. The presence of a strong domestic shipping industry is considered an important factor in the continued success of this cluster.

- The UK shipping industry is a crucial part of the UK’s transport infrastructure which delivers benefits to the economy through enhancing competition and raising productivity.

- UK merchant shipping acts as an important source of ships and UK seafarers that could be requisitioned for defence purposes in times of need

...while shipping produces less CO₂ than other forms of freight transport

- Transporting goods using shipping vessels produces far less CO₂ per tonne-kilometre than other forms of freight transport.

There was a strong economic rationale for introducing the tonnage tax...

- There are strong grounds for government support for the shipping industry through the tonnage tax. For one thing, it encourages ship owners to invest in training seafarers who add significant economic value to a range of other UK companies. It is also a core national industry.

- By supporting the shipping industry in a way that enables it to compete with other countries it has distinct competitive qualities to ensure success in this highly competitive international market.

...and the industry is now perhaps three to five times the size it would have been

- The tonnage tax has been vital to the transformation of the UK shipping industry in a global environment characterised by stiff tax competition as countries seek to attract inward investment because of the economic benefits that the shipping industry generates.

- Tonnage tax provides the basis for the continued growth of the UK shipping industry. With it, we estimate that the shipping industry is between three and five times larger than it would have been – generating additional benefits of around £6 billion in terms of GDP and around £1.5 billion a year of Exchequer revenues.

- These impacts may be mitigated if workers found employment over time in other areas of the economy. However, it should be noted that the shipping industry is an internationally mobile one and, without tonnage tax, people may have sought jobs abroad leading to a permanent loss for the UK.
2. Introduction

This report, prepared by Oxford Economics\(^1\), provides an evaluation of the economic contribution of the UK shipping industry. Furthermore, it considers the contribution that the introduction of tonnage tax in July 2000 has made to the development of the industry and the expansion of trained UK seafarers.

2.1. The channels of economic impact

There are many channels through which the UK shipping industry makes a contribution to the UK economy. This contribution includes the following standard economic impacts:

- **Direct impacts** – employment and activity in the UK shipping industry itself.

- **Indirect impacts** – employment and activity supported down the supply chain to the UK shipping industry, as a result of UK shipping companies purchasing goods and services from UK suppliers. This includes, for example, jobs supported through the demand for port services; the repair of ships; advertising; and a wide variety of activity in the business services sector (legal, accountancy, IT etc).

- **Induced impacts** – employment and activity supported by those directly or indirectly employed in the UK shipping industry spending their incomes on goods and services in the wider UK economy. This helps to support jobs in the industries that supply these purchases, and includes jobs in retail outlets, companies producing consumer goods and in a range of service industries.

But there are also a number of additional economic catalytic impacts (‘spillovers’) which result from the wider role of the shipping industry, for example:

- **Providing trained ex-seafarers**

- **Supporting the city cluster of maritime services**

- **As part of the UK’s transport infrastructure**

- **In providing ships and UK seafarers in crisis situations for defence**

The economic value of the direct, indirect and induced effects is related to the total revenues of the UK shipping industry, while the catalytic impacts are ‘spillover’ benefits for other industries, consumers and the economy more generally (as shown in Figure 2-1).

\(^1\) [www.oxfordeconomics.com](http://www.oxfordeconomics.com)
2.2. Report structure
The rest of this report is structured as follows:

- Chapter 3 discusses the recent performance of the global shipping industry and its prospects into the future.
- Chapter 4 focuses on the direct impact of the UK shipping industry in terms of employment, GDP, productivity and tax.
- Chapter 5 discusses the multiplier impacts of the UK shipping industry – the so-called indirect and induced impacts.
- Chapter 6 covers the catalytic impacts of the UK shipping industry.
- Chapter 7 looks at the counterfactual position if tonnage tax had not been introduced.
- Chapter 8 summarises the overall economic contribution of the UK shipping industry.
3. Overview of the global shipping industry

For nearly four years the global shipping industry, on average, has been experiencing favourable economic conditions. These are expected to continue into 2008. All facets of the shipping industry have benefited from strong world economic growth, although the timing appears to have differed across sectors. Tanker sector prices have eased from their strong position in 2006, suggesting a moderation in this sector. On the other hand the dry bulk sector is significantly stronger in 2007 as represented by record high freight rates recorded in August 2007.

Notwithstanding an easing in the US economy, world GDP (Purchasing Power Parities (PPP) terms) in 2007 is expected to grow by 5.2 per cent, the fourth consecutive year of above average growth. Strong growth in China, India and the Middle East are contributing to continued demand for raw commodities and, as such, leading to an increased demand for transportation. Firmer economic growth in Europe and Japan is also expected to contribute to stronger demand in 2007. Reflecting this period of strong growth, world seaborne trade is estimated to have increased by more than 4 per cent in 2006, led by global dry commodities trade (62 per cent of materials transported). The global dry commodities trade is expected to remain strong, growing by 7.6 per cent in 2007, up from around 5.4 per cent in 2006. The tanker shipping sector is also expected to benefit from strong world economic growth although to a lesser extent than the dry bulk sector due to lower oil production. This has limited the extent to which tanker spot rates have been able to increase in 2007 relative to the growth experienced in the dry bulk freight rates.

In response to favourable world trade conditions, the shipping industry has been ramping up supply. It is estimated that the world shipping fleet increased by 6.8 per cent in 2006, compared to 5.6 per cent in 2005. Of this the dry bulk fleet recorded a 6.9 per cent rise and the tanker fleet experienced slightly more moderate growth of 5.5 per cent. However, growth partly reflected lower scrapping rates. Growth in the shipping fleet is expected to remain firm as reflected by the ship building orders which have increased significantly reaching a record 155.2 dwt in 2006, or around five to six times as a many orders as experienced in most of the years of the 1990s. However, due to a lack of capacity investment post 2001 this is not expected to result in a significant increase in fleet supply in the near-term.

Continued strong growth in the global shipping fleet is expected, as the shipping industry tries to keep up with strong demand. As a result, ship owners are likely to continue to increase orders and Chinese shipping yards will increase production as they seek to become the world’s largest shipbuilder. In the long-term Indian shipping yards are also expected to make a significant contribution to shipping supply. However, a return to surplus is not expected until 2009 although this is likely to be followed by an increase in scrapping rates, which have been very low due to strong demand. In the dry bulk sector the shipping fleet is expected to increase by 5.2 per cent in 2007 and an average annual rate of around 6% in 2008 and 2009.
There are a number of risks surrounding the shipping industry. In the dry bulk sector the strength of Chinese demand remains the largest risk. Softer exports in steel production and weaker imports of iron ore would dampen freight rates and could also lead to a surplus in the shipping industry given the high level of order books. In the tanker sector, while demand for oil remains strong, the negative impact of weaker non-OPEC oil production combined with stringent adherence to oil production quotas by OPEC would impact the large number of shipping deliveries scheduled in the coming years.

Source: Clarkson
4. Direct impact – Employment and GDP

The shipping industry in the UK has grown significantly over the last 7 years since the announcement that tonnage tax was going to be introduced in the late 1990s, putting an end to over 20 years of continual decline. The total UK owned trading fleet has risen from a low of 617 ships in 2000 to over 700 in 2007, although this is still someway below the number of UK owned ships in the 1970s. Deadweight tonnage has grown even more dramatically from 7.2 million tonnes in 2000 to nearly 18 million by 2007. Similarly, a dramatic turn around has also been seen in the number of ships on the UK register - which has increased substantially to 629 from a low of just 379 in 2000.

![Chart 4-1: Growth in the UK owned trading fleet](chart)

**Key Points**

- The UK shipping industry directly employed around 98,000 employees in 2006. Of these 36% are UK officers or ratings, 10% UK shore based staff and the reminder foreign nationals working as both officers and ratings.

- On a turnover of £9.8 billion, the direct contribution of the UK shipping industry to UK GDP is estimated to have been around £5.2 billion in 2006.

- The UK shipping industry is a productive industry; each worker produces around 20% more GDP per person than on average across all manufacturing sectors in the UK.

- The direct contribution of the UK shipping industry to the Exchequer via income tax; national insurance contributions; corporation tax; tonnage tax; VAT and other indirect taxes was about £680 million in 2006.

- Transporting goods using shipping vessels produces far less CO₂ per ton-kilometre than other forms of freight transport.
This chapter details the jobs and GDP that the UK owned trading fleet has directly supported in the UK. It also quantifies the direct contribution of companies and employees in the UK shipping industry to the Exchequer through income and other taxes.

4.1. Direct employment

Total direct employment in the UK shipping industry is estimated to be around 98,000. This means that the UK shipping industry is, for example, a similar size to the air transport industry.

Data for employment in the UK shipping industry are taken from the Chamber of Shipping’s manpower survey. This survey covers all employees in UK shipping companies that are members of the Chamber of Shipping. In order to estimate employment in UK based shipping companies that are not members we have applied a grossing factor based on that used by the Office for National Statistics (ONS) when grossing up turnover data from Chamber of Shipping members. Additionally, this grossing factor has been adjusted downwards to reflect the fact that different types of shipping activity will be less labour intensive. An estimate of UK shore based employees is taken from an October 2000 survey by the Merchant Navy Training Board; returns from this survey of 106 companies showed 6,800 staff and this number was scaled up to 8,000 to account for non responses. Another survey in January 2002 estimated that there was no reason to change this figure. Assuming that shore based employed has risen in line with the growth in the number of UK owned ships, then we estimate that shore based employment is currently around 9,500. Here onshore employees refer to those involved in the administration and management etc of UK based shipping companies and not those ex-seafarers now employed in shore based companies (eg insurance, finance etc). This latter group is discussed in more detail in chapter 6.

Of the 98,000 employees in the UK shipping industry nearly 40% are thought to be non-UK ratings and a further 16% are non-UK officers. Of the UK seafarers there is an even split between officers and ratings. Around 10% of the total workforce is employed in the UK undertaking shore based roles.

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2 The Annual Business Inquiry (ABI) provides and alternative source of data for employment in the UK shipping industry. However, this data has not been used as there is concern over the accuracy of the IDBR, the database that underpins the ABI survey, and the Chamber of Shipping survey of their members is considered a more robust estimate.
4.2. Direct contribution to GDP

The standard method for calculating the direct contribution of an industry to GDP is to measure its so-called value added – that is, to calculate the difference between the industry’s total pre-tax revenue and its total bought-in costs (ie costs excluding wages and salaries) adjusted for any changes in stocks.

In order to estimate GDP we have used data from the Office for National statistics (ONS) on turnover in the industry\(^3\) provided to the Chamber of Shipping and then applied estimates for total bought-in costs and changes in stocks from ONS National Accounts data. It should be noted that there is a small discrepancy between two ONS series for turnover in the UK shipping industry (the series provided to the Chamber of Shipping and the published National Accounts data). For this study we have elected to use the statistics provided to the Chamber of Shipping as they are timelier (data for 2006 as opposed to 2004) and we assume that differences result from the balancing procedure\(^4\) used by the ONS and we can not estimate the impact of that in 2005 and 2006. The differences are presented in Table 4-1; it is also interesting to note the large discrepancy both the ONS series have with the Annual Business Inquiry (another ONS delivered survey), further supporting our view expressed in footnote 2 that this data source may not be reliable for the shipping industry.

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\(^3\) This is based on a survey of members of the Chamber of Shipping and grossed up by the ONS.

\(^4\) A procedure that ensures data for all data published in the National Accounts are internally consistent.
On this basis, we estimate that, on a turnover of £9.8 billion, the UK shipping industry contributed around £5.2 billion to UK GDP in 2006. This means that the UK shipping industry contributed nearly as much to GDP as, for example, the advertising industry.

Value added in the UK shipping industry has increased on average by 19% per annum over the 1999-2006 period in current prices. This is considerably faster growth than recorded by the overall economy, with the direct contribution of the UK shipping industry to GDP increasing substantially since 1999.

<table>
<thead>
<tr>
<th>Year</th>
<th>ONS (based on Chamber of Shipping survey) £ million</th>
<th>National Accounts £ million</th>
<th>ABI £ million</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>4,797</td>
<td>5,068</td>
<td>3,233</td>
</tr>
<tr>
<td>2000</td>
<td>5,122</td>
<td>4,912</td>
<td>3,682</td>
</tr>
<tr>
<td>2001</td>
<td>5,135</td>
<td>5,389</td>
<td>3,393</td>
</tr>
<tr>
<td>2002</td>
<td>4,724</td>
<td>5,734</td>
<td>5,143</td>
</tr>
<tr>
<td>2003</td>
<td>6,650</td>
<td>7,101</td>
<td>4,921</td>
</tr>
<tr>
<td>2004</td>
<td>10,115</td>
<td>8,820</td>
<td>6,046</td>
</tr>
<tr>
<td>2005</td>
<td>11,605</td>
<td></td>
<td>6,752</td>
</tr>
<tr>
<td>2006</td>
<td>9,814</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Looking at the sources of revenue for the UK shipping industry, it can be seen that the largest contribution
is from freight cross trade with 48%, followed by domestic passenger revenue and charter receipts - both contributing 14%.

Chart 4-4: Shipping revenue by source, 2006

The economic contribution in this section of the report has been presented as a contribution to UK GDP (as measured by the ONS). GDP was chosen as this is the most often quoted statistic for this type of analysis. However, it is also interesting to consider the contribution that the industry makes to Gross National Income (GNI\(^5\)). The key difference is that GNI for the UK shipping industry would include the contribution of UK nationals working for foreign owned companies, but exclude the contribution of foreign nationals working for UK companies. Furthermore, it would include profits from UK owned shipping companies located outside the UK and deduct profits from foreign owned shipping companies based in the UK.

Given the difficulties obtaining robust data we have not been able to calculate a GNI figure for UK shipping. However, despite the complexities around residency rules, it does seem likely (given the large number of non UK nationals working in the UK shipping industry) that the contribution of the UK shipping industry to GNI would be lower than the contribution to GDP. Whilst we do not have any data on UK owned shipping companies based abroad, looking at data from the ONS on profits that foreign owned UK affiliates operating in the UK remitted to foreign parents, not only is the total figure very low, but it also

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\(^5\) Gross national income (GNI) is GDP less net taxes on production and imports, less compensation of employees and property income payable to the rest of the world plus the corresponding items receivable from the rest of the world (in other words, GDP less primary incomes payable to non-resident units plus primary incomes receivable from non-resident units).
suggest that the vast majority of profits remain in the UK.

4.3. Productivity

Industries that are highly productive generate more economic activity per worker for the economy and hence help to raise living standards. Productivity in the UK shipping industry is £54,000 per employee which is more than 30% higher than the figure for the UK economy as a whole (£41,000) and around 20% higher than the average for all manufacturing industries in the UK.

Chart 4-5: Productivity in the UK shipping industry

The higher labour productivity in the UK shipping industry is a reflection of the level of employee skills, the capital intensity of the industry as well as the efficiency with which they are used. Although the percentage of employees with higher qualifications are similar to the national average - according to the Labour Force Survey (LFS) 16% of employees in the UK shipping industry are qualified to National Vocational Level (NVQ) 4 or equivalent (i.e. they are qualified to at least degree level or equivalent) and an additional 15% are qualified to NVQ 3 level or equivalent (A levels or equivalent) – only 3% of the UK shipping workforce have no formal qualifications at all compared to 9% of the whole UK workforce.

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6 Data from the ONS suggests that just £1 million was remitted by foreign owned UK affiliates in the shipping industry to foreign parents. This figure may be biased downwards due to the way the ONS collects and assigns the data – these data are assigned according to the main activity of the company that has been surveyed. So a company for which shipping is not their major activity would be assigned to another industry (the main activity of the company). However, the available data suggests that even correcting for this the figure may not be substantial.

7 2007 Q1 LFS data
4.4. Direct tax revenues

The UK shipping industry is estimated to have contributed around £680 million to the Exchequer in 2006. This is equivalent to 13% of value added in the UK shipping industry. Over half of the tax revenues raised for the Exchequer arise from income taxes. As detailed in Chart 4-6 very little revenue is generated by tonnage tax as this is set in order to generate only a nominal amount of tax and also little is estimated to be returned in the way of corporation tax from those UK shipping companies who elected not to join the tonnage tax scheme.

Chart 4-6: The contribution of the direct UK shipping industry to the Exchequer

In order to calculate the contribution of the UK shipping industry to the Exchequer we have had to make a number of assumptions. For income tax it is clear that a number of UK seafarers will not pay income tax as they will be at sea for more than 183 days in a year. Discussions with the Chamber of Shipping suggest that this might be around half of all UK officers and a much lower (assumed 10%) proportion of UK ratings. All shore based staff are assumed to pay UK income tax. Income tax receipts are then based on current tax thresholds and rates combined with average earnings statistics. We have assumed that non UK nationals do not contribute to UK tax. For National Insurance, both employees and employers, we have made similar assumptions to those for income tax, but in addition we have assumed that 100% of UK officers and 100% of UK ratings are employed through offshore agencies and therefore companies do not pay NI contributions and employees pay class C contributions only. Tonnage tax receipts are based on estimates from the Alexander report\(^8\) (and are not significant). Corporation tax receipts are based on levels of corporation tax paid by the industry prior to tonnage tax, scaled to reflect the number of ships currently not in tonnage tax compared to the total number of ships previously paying corporation tax. If an

\(^8\) Lord Alexander of Weedon’s Report "Independent Enquiry into a Tonnage Tax" (HM Treasury August 1999)
alternative methodology is employed to calculate the amount of corporation tax being paid by non tonnage tax ships a far higher figure is derived. This alternative estimate involves calculating the gross operating surplus of these ships (using National Accounts data) and then adjusting this for capital allowances this year and for previous years (once again using National Accounts data) and then applying current corporation tax rates to the remaining taxable profits. This confirms the findings from the Alexander report that rules for corporation tax for the shipping industry prior to tonnage tax were already highly beneficial.

4.5. **CO₂ emissions of the shipping industry**

There are no direct estimates of the carbon footprint of the UK shipping industry. However, statistics for CO₂ emissions by different forms of freight transport have been reported by the Swedish Network for Transport and the Environment. These show that smaller cargo vessels (2,000 to 8,000 dwt) emit 21 grams of CO₂ per tonne-kilometre compared to 50 and 540 for a heavy truck with trailer and air freight (747-400 1,200 km flight) respectively. Larger cargo vessels (over 8,000 dwt) have an even lower figure of just 15 grams of CO₂ per tonne-kilometre.

**Chart 4-7: CO₂ emissions – alternative forms of freight transport**

![Chart showing CO₂ emissions for different transport modes]

Source: Swedish Network for Transport and the Environment

4.5. **Summary**

The UK shipping industry makes a substantial direct contribution to UK GDP, employment and taxation. Value Added in the industry has increased substantially since the introduction of tonnage tax and the industry now contributes over £5 billion to UK GDP.
5. Multipliers and linkages with UK industries

As well as the direct contribution of the UK shipping industry to the economy, there are indirect impacts on employment and output through the supply chain of the shipping industry, and induced impacts from those directly and indirectly employed in the UK shipping industry using their earnings to buy other goods and services. This chapter summarises these different multiplier impacts.

Key Points

- The UK shipping industry helps to support 239,000 jobs allowing for those directly employed, for those employed in companies supplying the shipping companies and for the jobs dependent on the spending of shipping industry workers.

- In total, the UK shipping industry contributes around £11 billion a year to UK GDP, taking into account direct, indirect and induced impacts – equivalent to around 1% of UK GDP.

- For every job supported in the UK shipping industry, a further 1.5 jobs are supported through indirect and induced multiplier impacts.

- The UK shipping industry and its employees direct and multiplier contribution to UK tax revenues was over £3.2 billion in 2006.

5.1. Estimates of the multiplier for the UK shipping industry

The multiplier for the UK shipping industry is estimated to be around 1.75. This means that for every £1 million of output generated by the UK shipping industry, another £0.75 million of output is generated indirectly in the supply chain. The multiplier value is sourced from the ONS\(^9\) and is similar to the value estimated for the other transport sectors.

An alternative estimate of the multiplier for the UK shipping industry can be derived by using more up-to-date input-output tables. These can not be used directly as they do not identify imports of intermediate consumption by industry separately. However, using other ONS data on imports and assumptions about which sectors are doing the importing, we can generate more up-to-date multiplier estimates. Undertaking this analysis generated a very similar result to the older ONS data of around 1.7.

Chart 5-1 provides our estimates for the key UK based sectors that supply the UK shipping industry. The main sector is called ‘ancillary transport services’ and will include port activities. Unfortunately the Office for National Statistics (ONS) data does not enable us to separate out this category further. But information from a Department for Transport (DfT) report\(^10\) points to the significant size of the ports industry in the UK. Around 75,000 people work directly on port related activities in and outside the port (data refers to 2004).

\(^9\) UK Analytical Input Output Tables (2000)

\(^10\) Focus on Ports 2006 – DfT
Whilst much of this port activity will be servicing international shipping it does point to the significance of the UK ports industry, part of which is servicing UK shipping.

Chart 5-1: The UK shipping industry supply chain

Estimates based on Oxford Economics’ detailed econometric model of the UK economy suggests that the induced multiplier is 1.2 – ie every £1 million of output generated by the shipping industry and its supply chain a further £0.2 million pounds of output is generated in the economy as workers spend their earnings on other goods and services.

5.2. Value added and employment

Including direct and multiplier (indirect and induced) impacts, we estimate that the UK shipping industry supported around 239,000 jobs in 2006 with a value added contribution to GDP in the region of £11 billion. This is equivalent to around 1% of UK GDP.

This impact comprises:

- **Direct** employment in the UK shipping industry of around 98,000 jobs in 2006 (45,000 excluding non UK seafarers), contributing value added of £5.2 billion to GDP in the UK economy.

- **Multiplier** employment in other industries of 141,000 jobs supported through purchases of goods and services by companies in the shipping industry, and from employment supported by employees in the shipping industry (whether direct or indirect) using their income to purchase goods and services for their own consumption. The value added contribution to GDP from these supported jobs is estimated
to be a further £6 billion in 2006\textsuperscript{11}.

Indirect jobs supported include those in the ports sector, ship repair as well as the advertising industry and the financial and business services sector. Induced jobs are likely to include jobs in retail and a range of service industries

\textbf{Chart 5-2: The direct, indirect and induced contribution of the UK shipping industry}

\begin{table}[h]
\centering
\begin{tabular}{lcc}
\hline
\textbf{Gross Domestic Product} & \textbf{Employment (2006)} \\
\hline
\hline
\end{tabular}
\end{table}

5.3. \textbf{Direct and multiplier tax contribution}

To the extent that the shipping industry supports the employment and value added activities of other firms in its supply chain and from induced spending, it also supports tax contributions from those firms and employees. In calculating the contribution through payments of corporation tax, we have used data on the profitability of typical companies in the UK shipping industry’s supply chain along with current thresholds and tax rates\textsuperscript{12}. In order to calculate the contribution of the income tax paid by employees in the UK shipping industry’s supply chain we have used estimates of average earnings along with current tax thresholds and rates. A similar approach has been adopted for both employees and employers National Insurance payments. Indirect tax payments and council tax payments have been calculated using ONS data on average rate of tax incidence for different groups of people (depending on their earnings).

In total, the UK shipping industry contributes - directly, indirectly and through induced spending – around £3.2 billion to the Exchequer. This is comprised of:

- Tax payments by the direct UK shipping industry - estimated to be around £700 million with income

\textsuperscript{11} These multiplier impacts do not include the contribution from capital expenditure due to the lack of data.

\textsuperscript{12} We have included estimates for capital allowances in this calculation and assumed that half of businesses pay tax at the higher corporation tax rate.
tax payments being the largest component.

- Tax payments by companies and employees engaged in the supply chain of the UK shipping industry - corporation tax, income tax, National Insurance payments and indirect tax payments all make up a significant component of the overall total of over £1,700 million.

- Tax payments by companies or employees that are supported by the spending of employees employed in the UK shipping industry and its supply chain - corporation tax, income tax, National Insurance payments and indirect tax payments all make up a significant component of the overall total of over £800 million.

**Chart 5-3: The direct, indirect and induced contribution of the UK shipping industry to the Exchequer**

![Chart 5-3: The direct, indirect and induced contribution of the UK shipping industry to the Exchequer](image)

5.4. **Summary**

The contribution of the UK shipping industry from direct and multiplier impacts is estimated to be around 239,000 jobs, with a value added contribution to GDP in the region of £11 billion. In total, the UK shipping industry contributes - directly, indirectly and through induced spending – around £3.2 billion to the Exchequer.
6. Catalytic impacts

Key Points

- The contribution of the UK shipping industry is far wider than direct and multiplier effects discussed so far. There are a number of ways in which it facilitates the performance of other sectors of economy.

- Ex UK seafarers are important for many shore based jobs. For around 16,000 shore based jobs ex-seafarers are preferred, and for around half of they are essential.

- Under the tonnage tax regime training of UK seafaring officers has increased from around 450 to nearer 650.

- London is a world leading centre in providing maritime services. Over 14,000 people are employed in this sector. The presence of a strong domestic shipping industry is considered an important factor in the continued success of this maritime services cluster.

- The UK shipping industry is a crucial part of the UK’s transport infrastructure which delivers benefits to the economy through enhancing competition and raising productivity.

6.1. Introduction

The previous chapters discussed the direct and multiplier contribution that the UK shipping industry makes to the UK economy, in terms of GDP, employment and tax. However, the overall contribution that the industry makes to the UK economy is far wider than this. This chapter explores some of these wider impacts which include: trained seafarers, the City maritime cluster, shipping as part of the UK’s transport infrastructure and defence.

6.2. Trained seafarers

There are many industries that rely on the expertise and skills that ex UK seafarers possess in order for their businesses to be successful. These are businesses that are outside the direct UK shipping industry, as discussed in chapter 4, and often outside the supply chain of the UK shipping industry discussed in chapter 5.
Box 6-1: The importance of ex-seafarers

“The shipping industry is unusual because of the number of industries it supports, not only directly, but by providing a pool of suitably qualified ex-seafarers. Without a significant British shipping industry the onshore industries, including Maritime London, would face extreme difficulties.”

Table 6-1 presents results from a survey by Gardener et al\textsuperscript{14} undertaken in 2003 (total results from an equivalent survey in 1996 are also presented). These results indicate that for around 16,000 jobs it is considered preferable to employ a former seafarer. These jobs are wide ranging with some likely to be in the UK shipping industries supply chain, for example, port services and maritime lawyers, while others may or may not be (for example, consultants and surveyors).

Of these 16,000 jobs, the survey reports that for between 47% and 62% (depending on certain grossing up assumptions) it is essential that the employee is a former UK seafarer.

\begin{table}[h]
\centering
\begin{tabular}{|l|c|c|c|c|}
\hline
\textbf{Jobs for which employers would prefer to employ former seafarers} & \textbf{1996} & \textbf{2003} & \textbf{2008} & \textbf{2013} \\
\hline
Classification societies & 2,645 & 2,543 & 2,543 & \\
Consultants & Surveyors & 1,611 & 1,632 & 1,837 & \\
Port Services & 156 & 107 & 116 & \\
Terminal Operators & 411 & 457 & 457 & \\
Towage/Salvage/Dredging & 552 & 529 & 550 & \\
Ports & 1,966 & 2,126 & 2,244 & \\
Maritime lawyers & 183 & 173 & 215 & \\
Marine Insurance and P & I & 430 & 460 & 518 & \\
Ship Finance & 13 & 13 & 22 & \\
Ship Brokers and Charterers & 122 & 138 & 124 & \\
Ship Agents & 101 & 69 & 101 & \\
Marine Equipment and Information Technology & 1,896 & 2,350 & 2,449 & \\
Marine Engineering & 447 & 342 & 298 & \\
Non-Fed Shipowners & Offshore & 1,957 & 2,029 & 2,057 & \\
Federated Shipowners and Offshore & 440 & 500 & 607 & \\
Ship and Crew Management & 945 & 1,023 & 1,108 & \\
Maritime Schools & 409 & 300 & 271 & \\
Miscellaneous & 1,298 & 1,298 & 1,285 & \\
\hline
\textbf{Total} & \textbf{16,825} & \textbf{15,682} & \textbf{16,089} & \textbf{16,802} \\
\hline
\end{tabular}
\caption{Jobs where former seafarers are preferred}
\end{table}

Chart 6-1 details the experience of people who are currently employed in roles where a former seafarer is preferred. Around two-thirds are former UK merchant navy seamen, around 10% are former Royal Navy, a further 10% are foreign ex-seafarers with the remainder made up of non-seafarers (presumably as ex-seafarers were not available).

\begin{itemize}
\item \textsuperscript{13} Environment, Transport and Regional Affairs Committee and quoted in Lord Alexander of Weedon’s Report “Independent Enquiry into a Tonnage Tax” (HMT August 1999)
\item \textsuperscript{14} Gardner et al “The UK economy’s requirements for people with experience of working at sea 2003”
\end{itemize}
Given the high demand for ex-seafarers, mostly former UK merchant navy people, the UK shipping industry has a crucial role to play in supplying appropriately trained people to help sustain the activities of many UK shore based operations. As discussed above, for many roles these UK ex-seafarers are essential. But even where they are simply preferred, if alternative people are employed it will raise the costs of training for the shore based companies and it is likely that they will not be as productive, at least in the short to medium term.

Chart 6-1: Type of person employed where former seafarer is preferred

As part of the tonnage tax, there was a training agreement. And now nearly 650 officers are trained each year compared to around 450 before the introduction of the tax. This commitment to training will help, in part, to satisfy the need for ex UK seafarers and help to sustain the industries which depend upon them. Box 6-2 highlights some of our findings about training from discussions with majors UK based shipping companies.

Box 6-2: Interview feedback - the importance of ex-seafarers

Many of the respondents felt that the training requirement associated with the tonnage tax was a “good idea” and that they took the training “seriously” and had “active cadet programmes”.

6.3. Maritime services cluster in London

London is the world’s largest provider of a range of business services to the international maritime community (see Table 6-1).
This cluster makes a significant contribution to the UK economy. A study by IFSL\textsuperscript{15} indicates that total overseas earnings of UK maritime services are likely to have been in the region of £1½ billion in 2006. The sector directly employs around 14,000 people undertaking a large variety of work in the maritime service sector. Some of the largest sectors include people employed at law firms, in ship broking, ship classification and in insurance brokering. Employees in these sectors are generally well paid and make a significant contribution to UK GDP as well as UK tax revenues.

The maritime services cluster is not entirely dependent on the UK shipping industry as a large proportion of the activities it undertakes will be for the international shipping industry (and the part that is directly related to the UK shipping industry will be captured in the indirect multiplier links discussed in chapter 5). Nevertheless, as an extremely competitive global industry, without the support (direct purchases) of a strong domestic shipping industry the dominance of the cluster may be under threat. This arises from the nature of clusters: their strength is derived through the close proximity of many associated industries. This ensures a high degree of competition, whilst at the same time offering a “one stop shop” for all service needs. If this cluster is weakened, through the demise of a UK shipping industry, then the whole cluster may be weakened and in the long term other more competitive international clusters may surpass London.

\textsuperscript{15} Maritime Services, October 2007, IFSL
6.4. Other catalytic impacts

6.4.1. Infrastructure

In the Eddington report\textsuperscript{16} a number of ways in which transport contributes to the performance of the UK economy are identified. These are identified in Figure 6-1. Improving transport not only has direct impacts such as reducing costs and time or increasing reliability, it also has wider impacts. For example:

- **Economies of scale** - more freight carried by the same number of ships.

- **Competition** - through improving accessibility and reliability of journeys for freight traffic can reduce barriers to trade and deliver growth benefits by exposing firms to greater competition.

- **Connectivity** – not only can transport infrastructure speed up connections already in existence but can also open up new ones. This increase in connectivity can open up new business opportunities.

- **International trade** – As well as the obvious distribution of goods, expanding international trade can also further contribute to productivity and growth. Increased exposure to imports can lead to technological spillovers and innovation. Although the benefits of this are difficult to quantify, the Eddington report points out that “falling transport costs over the forty years since 1960 have boosted

\textsuperscript{16} The Eddington Transport Study - The case for action: Sir Rod Eddington’s advice to Government (2006)
international trade of goods by 10-17.5% and are estimated to have raised UK GDP by 2.5-4.4%”. The report goes on to refer to work by The European Council of Transport Ministers who “cite airport and port infrastructure as one of the critical success factors for economic growth, business location decisions and tourism”.

**Figure 6-1: Links between transport and economic performance**

6.4.2. **Defence**

Whilst it is only as a very last resort that UK merchant shipping would be requisitioned for defence purposes, it is nevertheless an important consideration. Indeed, in the Alexander report concern was expressed that with further declines in UK merchant ships and UK seafarers: “…the point might be reached where we had difficulty especially if we had to take unilateral action to defend our interests, in manning ships with UK seafarers”.

Source: Eddington study
7. The impact of tonnage tax

Key Points

- There was a strong economic rationale for the introduction of tonnage tax in July 2000. In the Alexander report some of the key points noted were: market failure, comparative advantage and the spillover benefits of the industry.

- Tonnage tax is important in putting the UK industry on a level playing field with its competitors, enabling it to generate the economic benefits highlighted in this report.

- The strategic management requirement associated with the tonnage tax has ensured that those companies registering for the UK tonnage tax have brought a significant number of jobs and decision making power to the UK.

- The introduction of tonnage tax has enabled the UK industry to expand to between three and five times the size it would have been without it, generating an additional £6 billion of GDP a year and about £1.5 billion of revenue for the Exchequer.

This chapter of the report looks at the role tonnage tax has played in enhancing the contribution that the UK shipping industry makes to the UK economy. Whilst it is impossible to know what the industry would have looked like precisely without tonnage tax we present results for two plausible scenarios.

Tonnage tax was introduced in the UK when the Finance Act 2000 became law in July 2000. The tonnage tax system was introduced to create a positive fiscal environment for international shipping based in the UK, in line with other major maritime countries. Companies that elect to join the tonnage tax system are charged corporation tax on a fixed notional profit, calculated by reference to the net tonnage of its ships, instead of the actual profits earned from its shipping activities. This creates an environment of greater certainty and stability for those companies opting in. However, it does mean that a company would still have to make tonnage tax payments even if it actually makes an operating loss in relation to its shipping activities.

Some key aspects of the tonnage tax are:

- shipping activities are carefully “ring-fenced” to ensure that only genuinely shipping-related business profits fall within the regime;

- in order to be eligible to join the tonnage tax system companies must have the “strategic and commercial management” of a ship in the UK. Furthermore, the ship must be over 100 tons gross and be seagoing;

- operating and finance lessors are able to claim capital allowances on the first £40 million of expenditure per ship at the rate of 25% per year and a further £40 million of expenditure at the
reduced rate of 10% per year;

- there is a minimum training requirement of one cadet per year for every 15 officer posts for all ships in the tonnage tax fleet and the cadet must be ordinarily resident in the UK.

### 7.1. The economic rationale for tonnage tax

Lord Alexander\(^\text{17}\) was commissioned by Government to conduct a study of the case for, and the design of, a lower rate ring-fenced tonnage tax. His independent report considered the economic rationale for a tonnage tax taking account of the Government's objectives for shipping, and the national and international competitiveness issues involved. Some of the key points he made were:

- **Market failure** – particular note was made of the fact that the benefit to the shipowners of training seafarers is less than the total benefit to society.

- **Comparative advantage** – the UK has a comparative advantage in certain maritime sectors: “if our industry is granted a package of measures which enable it to compete with other countries it has distinct competitive qualities which raise the prospect of success in achieving the Government’s objectives”\(^\text{18}\).

- **Spillover benefits** – those indirect, induced and catalytic benefits identified in chapters 5 and 6.

### 7.2. The impact of tonnage tax

The two counterfactual scenarios we considered are intended to give an indication of the potential impact that tonnage tax had. The first assumes that the owned fleet would have continued to decline as it had for the preceding 20 years, albeit at a much slower rate – in line with a slow down in the decline seen in the years immediately prior to the announcement of a tonnage tax. The second scenario considers that the industry would today only have half the tonnage that it did in 2000. This scenario was designed following consultations with the Chamber of Shipping. In practical terms this means that under the first scenario deadweight tonnage (Dwt) would have been just 6.5 million tonnes by the end of 2006 and in the second it would have fallen to 3.6 million tonnes by the end of 2006, compared to the actual figure at the end of 2006 of 17.9 million tonnes.

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\(^{17}\) Lord Alexander of Weedon's Report "Independent Enquiry into a Tonnage Tax" (HMT August 1999)

\(^{18}\) Lord Alexander of Weedon's Report "Independent Enquiry into a Tonnage Tax" (HMT August 1999)
Box 7-1: Interview feedback – role of tonnage tax in locating/remaining in the UK

All the shipping companies who were not located in the UK prior to tonnage tax highlighted the tax as the key reason for their decision to build up a UK presence – with all stating that they would not be in the UK without tonnage tax. Furthermore, they spoke of the considerable number of jobs and decision making power that they had brought to the UK as part of the strategic management requirement – termed “very real” by one respondent. Those shipping companies that already had a presence in the UK highlighted the importance of tonnage tax for them in expanding their UK operations.

As a note of caution, many respondents also highlighted their concern that changes in the rules and the associated uncertainty had led them to reduce the number of ships that would have otherwise been operated from the UK.

7.2.1. GDP impact

In calculating the impact on UK GDP under the two tonnage tax scenarios (outlined above) we have assumed a proportional impact on direct GDP from tonnage. For the supply chain (and hence also the induced impact) we have assumed that port services would not be impacted as they are likely to be employed in services for international companies, but that all other UK supply industries would be impacted. This latter assumption is supported by feedback from interviews we undertook with a number of major shipping companies currently based in the UK (see box 7-2).

Box 7-2: Interview feedback – supply chain impact

All the major shipping UK based companies we spoke to indicated that without tonnage tax their presence in the UK would either be non-existent or significantly smaller. All organisations also indicated that this would impact substantially on their purchases of maritime services from UK suppliers. Some respondents indicated that they felt without a substantial UK shipping presence the maritime services cluster may, over the longer term, cease to be as dominant in the world.

Chart 7-1 presents the results, in GDP terms, of this analysis. In the first scenario we estimate that the total GDP contribution of the UK shipping industry is £5.6 billion higher than it would have been without tonnage tax. Of this, over £3 billion is from the direct contribution of the shipping industry itself. In the second scenario the contribution is £7.1 billion higher than it would have been, as under this scenario tonnage would have been even lower than in first scenario.
Put another way, the contribution of the UK shipping industry to UK GDP under scenario 1 would have been just £5.5 billion and under scenario 2 would have been even lower at just £3.9 billion.

### 7.2.2. Employment impact

In calculating the impact on employment we have adopted the following assumptions:

- In the second scenario, which represents the Chamber of Shipping best estimate as to the size of the UK industry without tonnage tax, we assume that all UK seafarers currently employed on non-tonnage tax ships would still be employed. In the first scenario – a purely trend based scenario – we do not make this assumption.

- In both scenarios we assume that shore based employees in the shipping industry (administrative and managerial staff at shipping companies) and those people employed in the supply chain of the shipping industry would be impacted proportionately to GDP.

Chart 7-2 presents the results excluding the impact on foreign seafarers and those not eligible to pay UK income tax. The total number of additional UK jobs supported by the UK shipping industry in scenario 1 is 77,000. Of these around 22,000 are employed directly in the UK shipping industry. In the second scenario the total impact on UK employment is slightly larger at around 84,000. However, the direct employment impact is proportionally smaller as the data suggests that tonnage tax vessels employ proportionally more non-UK seafarers.
Put another way, under scenario 1 the UK shipping industry would have supported just 99,000 jobs under scenario 1 and 91,000 under scenario 2 (only including those eligible to pay UK income tax).

7.2.3. Taxation impact

In calculating the taxation impact of a larger direct UK shipping industry due to the introduction of tonnage tax (both scenarios) we have used the same methodology described in chapter 4 when we calculated the current contribution – ie we have used information on wages, profits and employment along with current tax rates and thresholds.

Chart 7-3 indicates that under the first scenario the amount of tax that the direct shipping industry contributes is estimated to be £430 higher than it would have been without tonnage tax, despite the fact that tonnage tax itself is estimated to contribute only £5 million; income tax and other taxes paid by employees add significantly to this amount. In the second scenario the amount of additional tax is lower at £230 million due to the lower impact on direct employment assumed in the second scenario.
When we consider the tax gained from the additional jobs and output in other areas of the economy that would not have occurred without tonnage tax (the indirect and induced impacts) it can be seen that the tax gain is far greater. In the first scenario the contribution to the Exchequer is some £1 billion higher with tonnage tax and in the second scenario this figure rises to £1.3 billion (Chart 7-4).

In total, direct, indirect and induced, we estimate that in the first scenario the total tax contribution has been £1.4 billion higher than it would have been without tonnage tax and £1.5 billion in the second scenario. It should be noted that the direct, indirect and induced figures for GDP, tax and employment would be mitigated as workers found employment over time in other areas of the economy. However, the shipping industry is a very internationally mobile one, and without tonnage tax, people working in the industry and its supply chain may have sought alternative work abroad. This would mean that the GDP, tax and employment data calculated here would have been permanently lost to the UK.
7.3. Conclusions
The tonnage tax has been vital to the turn around of the UK shipping industry in a global environment characterised by stiff tax competition as countries seek to attract inward investment because of the economic benefits that the shipping industry generates. Tonnage tax provides the basis for the continued growth of the UK shipping industry. With it, we estimate that the shipping industry is between three and five times larger than it would have been – generating benefits of around £6 billion in terms of GDP and around £1.5 billion a year of Exchequer revenues.
8. Conclusions – summary of overall impact

This report sets out the contribution of the UK shipping industry to the UK economy. Taking into account the direct, indirect and induced impacts, we estimate that the UK shipping industry in total:

- Supported 239,000 jobs in 2006.
- Contributed around £11 billion to UK GDP in 2006.
- Contributed £3.2 billion to the Exchequer.

The breakdown of the value added and tax contribution to the UK economy is summarised in chart 8-1.

Chart 8-1: Summary of the contribution of the UK shipping industry to the UK economy

The overall contribution of the UK shipping industry is far wider through impacts such as:

- trained ex-seafarers working in onshore industries;
- helping to support the maritime services cluster in London;
- being part of the UK’s transport infrastructure network; and
- providing ships and UK seafarers in times of emergency to the UK’s armed services, particularly the Royal Navy.