Transport Statistics Bulletin

Port Employment and Accident Rates 2009/10

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Rounding of figures: In tables where figures have been rounded, there may be an apparent slight discrepancy between the sum of the constituent items and the total as shown.

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1.1 Introduction

Information is needed about employment in ports for policy development; to understand their economic contribution and to enable accident rates to be calculated. However, that information is not readily available from national statistics data as SIC codes do not clearly define all port related activities.

Consequently the Department for Transport (DfT) commissioned a study in 2004 to estimate ports employment and accident rates in the UK. The study was conducted by Momenta in partnership with Databuild Research and Solutions Ltd.

In 2009, DfT commissioned Databuild to conduct a study to update the data, to improve on the accuracy of the estimates where possible and to identify additional approaches to provide estimates for ports employment using published data between studies.

The accident rate data are intended to supplement information collected by the Health and Safety Executive (HSE) through the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR) statistics and through surveys conducted by Ports Skills and Safety Ltd. (PSS).

The primary objectives of the work were to:

1. Develop detailed estimates of the number of full time equivalent employees (ftes) employed in the ports sector in the UK considering:
    a. Direct and indirect employment
    b. On port and off port employment
    c. Occupation
2. Collect summary data on the number of accidents to supplement, and for comparison with, those collected by HSE and PSS
3. Identify and address any shortcomings in the current evidence base
4. Collect supplementary information from agencies and labour supply companies supplying workers to the ports including:
    a. Details of the number of employees (full time equivalents) they supply to ports (primarily to check the number of agency workers reported in the ports and business surveys)
    b. Details about how accidents relating to agency workers are reported.

The main results of the study are derived from voluntary surveys of all commercially active port authorities (98 complete responses out of 161) and a quota sample of other port related businesses (1,398 interviews completed).

1.2 Key findings

1.2.1 Employment

A summary of estimates for each employment module is given in the table below:

Module		Total employees (ftes)[2]	Range[1]
	On the port estate		
A1	Direct	37,000[3]	30,500 -> 43,500
A3	Indirect	700	500 -> 1,000
C	Partially related	5,000	3,700 -> 6,300
E	Unrelated	6,500	2,900 -> 10,000
	Off the port estate		
A2	Direct	21,100	18,800 -> 23,400
A4	Indirect (indicative only)	33,000	9,000 -> 65,000
B	Induced (indicative only)	22,000	9,000 -> 31,000

Notes:

1. 95% confidence intervals for values derived from the survey part of the study i.e. modules A1, A3, C, E, and A2. The range was calculated as follows:
    a. The 95% confidence interval for the mean number of employees in each module (i.e. the lower bound for the mean and the upper bound) was calculated
    b. The upper and lower bounds for the mean were then expressed as a proportion of the observed mean and applied to the central estimate for total employees to get the range.

    The ranges given for modules A4 and B have been estimated using multipliers from other studies as described in section 5 and, therefore, are fundamentally different from the ranges presented for the other modules. Those based on confidence intervals (modules A1, A3, C, E and A2) reflect the inbuilt variation associated with the survey estimate; those for A4 and B provide an indication of what the possible range of values might be for these modules, depending on your choice of multiplier factors/assumptions.
2. Figures are rounded to the nearest 100 fte employees.
3. This figure comprises approximately 12,500 employed by port authorities/operators and 24,500 employed by port businesses. Note that some port authorities include management and administration only as operational functions are conducted separately by port businesses.

From the survey it is estimated that 37,000 full time equivalent employees (range 30,500 – 43,500) work on the port estate in directly related jobs and around 21,100 ftes (range 18,800 – 23,400) off the port estate – total 58,100 (range 53,000 – 63,200) people working directly on port related activities either on or off the port estate.

There are also approximately 12,200 other people working on the port estate (range 8,400 – 15,900), either:

- indirectly, supplying non-specialised goods and services (700 employees, range 500 – 1,000);
- in partly related jobs (such as manufacturing and where the companies use the port to import or export goods and it suits them to be so located, totalling 5,000 employees, range 3,700 – 6,300);
- Or in unrelated jobs (which have nothing to do with the port, other than leasing premises or land for example, totalling 6,500 employees, range 2,900 – 10,000).

Multipliers were used to obtain an indication of:

- Indirect employment in companies outside the port supplying non-specialised goods and services to direct companies and
- Induced employment which is employment associated with expenditure of those who derive incomes from direct and indirect companies.

However, these estimates are indicative only as the possible range of values for indirect and induced employment outside the port estate is highly dependent on the choice of multiplier factors/assumptions. On the basis of the multiplier factors described in section 5, indirect employment outside the port estate could range from approximately 9,000 to 65,000 employees and induced employment could range from 9,000 to 31,000 employees.

Although the 2009/10 survey was designed to be as consistent as possible with the preceeding 2004/5 survey, some methodological improvements were made, and there were some unavoidable differences in the sources of information used in building the sample. For these reasons, and because of the effects of sampling variation in each of the two surveys, it is not possible to give precise estimates of changes between the surveys. On balance, and after bearing in mind the methodological changes between the surveys, the findings indicate that there has been a decline in the total number of people working in the UK ports industry since 2005.

1.2.2 Accidents

Accident rates have been estimated from the grossed up results of the study by dividing the number of accidents by the number of employees. Separate estimates have been made of accident rates for:

- direct businesses and port authorities on ports
- non-direct businesses on ports (i.e. indirect, partially related and unrelated)
- all businesses and port authorities on ports

The table below summarises the accident rates for these groups.

		Estimated number of reportable accidents					
		Fatal	Major	>3 day[1]	Total	Rate per 100,000 employees (all severities)	Number of employees (ftes)
Direct on port	All employees	4	46	371	421	1,100	37,000
	Agency staff	0	10	6	16	1,000	1,550
Non-direct on port[2]	All employees	0	9	63	72	600	12,250
	Agency staff	0	0	0	0	0	250
All businesses and port authorities on port	All employees	4	65	440	509	1,000	49,250

Notes:

1. An over 3 day injury which is not major but which results in the injured person being away from work for more than three days.
2. Indirect, partially related or unrelated employment
3. Agency staff are a subset of all employees.

The accident rate for direct businesses on port is estimated to be 1.1% (1,100 per 100,000 employees). If the upper and lower bounds for the estimated number of direct employees are used in the calculation then the accident range is 0.9 - 1.4 % (900 to 1,400 per 100,000 employees). The accident rate for other businesses on port is 0.6 % (600 per 100,000 employees).

1.2.3 Agencies

30 of the approximately 130 respondents from port authorities[1] interviewed in the ports survey indicated that they use agency workers. However, interviews with agencies and supplementary desk research indicate that at least 44 ports are users of agencies/labour supply companies; approximately 68% of these are major ports[2].

During the course of the fieldwork it was possible to identify the agencies and labour supply companies supplying all but eight of the 44 ports using agency workers (6 major and 2 minor ports).

The survey identified that ports used 1.3 agencies on average[3] and it is therefore estimated that there are approximately 57 agencies/labour supply companies supplying

[1] More than one respondent in each individual port authority was interviewed where required to get a comprehensive understanding of port employment and accidents (e.g. where ports are split into a number of wharves).
[2] Interviews with agencies and supplementary desk research identified an additional 14 ports that were not interviewed in the ports survey which were using agency workers.
[3] This figure was calculated by taking the number of unique agencies/labour supply companies that were identified and dividing it by the number of unique ports they were supplying. This eliminated the risk of double counting agencies where they supplied more than one port.

workers to port authorities in the UK comprising 12 major labour supply companies and 45 other agencies.

Most respondent agencies provided a figure for the current number of workers they were supplying to the port; however, as this figure fluctuates some preferred to give a range. Respondent agencies were supplying approximately 31-38 employees each on average. This figure can be considered indicative only as not all respondents were able or willing to provide a response. However, it suggests that there were between approximately 1,700 and 2,200 agency employees on ports at the time of the survey.

This figure broadly corresponds with the results of the ports and business surveys which indicated that there were approximately 1,800 agency employees in total working for port authorities and businesses on port at the time of the interview.

This suggests the ports and business surveys captured agency worker numbers fully.

2 Introduction

2.1 Background

Information is needed about employment in ports for policy development; to understand their economic contribution and to enable accident rates to be calculated. However, that information is not readily available from national statistics data as SIC codes do not clearly define all port related activities.

Consequently the Department for Transport (DfT) commissioned a study in 2004 to estimate ports employment and accident rates in the UK. The study was conducted by Momenta in partnership with Databuild Research and Solutions Ltd.

In 2009, DfT commissioned Databuild to conduct a study to update the data, to improve on the accuracy of the estimates where possible and to identify additional approaches to provide estimates for ports employment using published data between studies.

The accident rate data are intended to supplement information collected by the Health and Safety Executive (HSE) through the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR) statistics and through surveys conducted by Ports Skills and Safety Ltd. (PSS).

2.2 Objectives

The primary objectives of the work were to:

1. Develop detailed estimates of the number of full time equivalent employees (ftes) employed in the ports sector considering:
    a. Direct and indirect employment
    b. On port and off port employment
    c. Occupation
2. Collect summary data on the number of accidents to supplement, and for comparison with, those collected by HSE and PSS
3. Identify and address any shortcomings in the current evidence base
4. Collect information from agencies and labour supply companies supplying workers to the ports including:
    a. Details of the number of employees (full time equivalents) they supply to ports
    b. Details about the number of accidents and how accidents are reported.

In addition to the primary objectives of the work analysis was conducted to:

1. Establish whether there is a relationship between employment and the quantity of cargo or passengers (as if this can be modelled this will provide further evidence for employment changes between surveys).
2. Explore whether national employment statistics from the Inter-Departmental Business Register (IDBR) could be used to produce an estimate of port related employment in future between surveys.

3 Port employment definitions and employment modules

3.1 Introduction

Given the complex and varied nature of activities going on in, and relating to, ports it is important to define the various categories of port employment as clearly and precisely as possible. Consistent with the 2004-05 study, the defined activities were arranged into modules so that the results can be re-assembled for different purposes – for example for measuring on port accident rates it is important to include only employment on the port estate.

The types of port or port related employment included in the study are summarised below. **The reader should refer to the appendix (section 9) for further details relating to the specific jobs and types of company that are included in each category.**

3.2 Direct employment

This is defined as employment associated with the main operation of a port and supporting activities. This includes port management and administration; port operations (e.g. cargo handling) including technical support; marine and shipping activities in port (e.g. people employed by shipping lines or operators on-shore); port regulatory and other services (e.g. customs) and other supporting port related activities. This work may take place either on or off the port estate.

Detailed definitions of the sub-categories of direct employment used in this study are given in the table below:

Port Operations [1]:	
Marine operations	Comprises activities which involve the operation or support of seafaring vessels, including dredgers and tugs. Also included are VTS[4] staff, harbourmasters, lock operations staff, berthing, mooring, bunkering and fuel supply, and surveying activities.
Cargo operations	Comprises activities involving the loading and unloading of cargo, and any associated administration. Cargo operations includes stevedores, forklift operators, cargo handlers and clerks.
Passenger operations	Comprises activities involving the transport of passengers by sea. Job roles included are information officers, baggage handlers and security staff.
Other port operations	**Port management and administration –** staff employed by the port working in management, finance, administration, HR, training etc.

[4] Vessel Tracking System (i.e. traffic monitoring & control)

	Port regulatory and other services - Police, port security (not passenger), customs, immigration, health and safety, veterinary, environmental protection, waste disposal waste oil reception etc.
	Professional engineering and maintenance – marine engineers, technical support and maintenance, underwater maintenance and engineering, ship repair and maintenance
Other supporting port related activities [2]:	
Any other directly port related activities not covered above (i.e. which are not directly concerned with the operation of the port or its ship, cargo or passenger handling activities). Includes forwarding agents, ship brokers, importers/exporters, ship chandlers, line/ shipping agents, tank cleaning, specialist equipment hire/sales, ship classification, fishing (on port), salvage activities etc.	

Notes:

1. Note that employment within the four 'operations' categories may include both office based and non-office based jobs.
2. 'Other supporting port related activities' are considered 'non-operational', in contrast to the previous four categories
3. Seafarers who are employed at sea but work on the ship in port are *excluded* from these port employment estimates. There will be an element of "self handling" in ports by seafarers (i.e. who *load an*d unload cargo in port) but in practice it would be very difficult to estimate just how much of their time is spent on these activities on-shore and it would not be appropriate to include all seafarer time since the vast majority of it is spent at sea. To avoid possible over reporting of accidents (to seafarers) respondents were also asked to exclude marine accidents.
4. Shore-based employment by shipping companies is excluded from port employment estimates unless the company is based on a port estate, in which case its shore-based employees are included in direct employment.

3.3 Indirect employment

This is defined as employment associated with general goods and services i.e. non-specialist marine related goods or services purchased by companies involved in direct employment operations e.g. general supplies, catering, general maintenance.

3.4 Induced employment

This is defined as employment supported by spending by households of direct and indirect employees.

3.5 Employment in ports partially related to ports operations

Some businesses located on port do so because it is convenient for them, for example they may import materials or export goods, as with Tate & Lyle in the Port of London; or they may bring in produce by ship, an example would be a company involved in fish processing.

3.6 Port visitors

These are defined as visitors to the port estate as estimated by the port authority or port managers e.g. people on general business with the port authority or manager, lorry drivers coming into the port to make deliveries, etc. Visitors to the port who are entering the port because of their employment such as HGV drivers accompanying their vehicle on a RO/RO ship were classified as visitors rather than passengers.

Passenger numbers were collected separately from port visitors to:

1. Draw a distinction between the two categories of visitors
2. Feed into analysis of the factors affecting the levels of employment in ports.

Estimates have also been made of visitors to the port estate by employees of direct companies located outside the port, in terms of FTEs. These figures are not included in the employment estimates however as to do so would introduce double counting.

3.7 Employment in ports unrelated to port operational activities

These are defined as those businesses on the port estate that are completely unrelated to the activity of the port, simply renting or leasing land from the port authorities, such as retail outlets. Note that road haulage companies based on the port estate have also been classed as unrelated on the basis that road haulage is a distinct transport sector from ports. (For the same reason, employment by companies not based on-port and solely involved in road haulage will not be included at all).

3.8 Employment modules

The employment estimates have been made using the above employment definitions but with a further division between:

On port employment
Defined as employment of organisations based on the port estate

Off port employment
Defined as employment of organisations based outside the port estate

In both instances, the location of the business premises of the organisation dictated how the employment was classified. As it is not possible to determine with complete accuracy whether an organisation is based on the port estate using postcode data[5], the division

[5] An organisation based on the port estate may have the same postcode as an organisation based just outside the port estate.

between on and off port employment was made based on the view of the respondent as to whether they were based on the port estate.

Modules can either be taken separately or combined with others to suit the specific area of interest.

The modules are as follows:

A	Port operational activities
A1	Direct employment within the port estate
A2	Direct employment outside the port estate
A3	Indirect employment within the port estate
A4	Indirect employment outside the port estate
B	Induced employment
C	Employment on the port estate partially related to port operational activities
D	Port visitors
E	Employment on the port estate unrelated to port operational activities

3.9 Permanent and non-permanent employees

Permanent employees are those employed on a permanent contract (whether employed full time or part time); non-permanent employees are those employed on a temporary basis (e.g. seasonal workers, agency workers and any other casual employees).

3.10 Full time equivalent employees (FTEs)

The employment estimates produced in this study are expressed as full time equivalent employees. An individual is said to be a full time equivalent employee if they work a full working week (around 40 hours per week) AND work all year round.

Two employees working approximately 20 hours per week all year round would be the same as one full time equivalent employee. Two employees working approximately 40 hours per week but only working for six months of the year would be the same as one full time equivalent employee.

4 Research procedure

4.1 Introduction

The study comprised three surveys:

1. A survey of a sample of ports in the UK to gather data about port operations, employment and accident rates. Interviews were conducted from November 2009 to March 2010.
2. A survey of businesses both within and outside of ports to gather information about employment types, skill levels and accident rates. Interviews were conducted between mid-January and end-February.
3. A supplementary survey of agencies and labour supply companies specialising in casual staff for direct sectors, and located close to ports, primarily conducted to check the coverage of these types of employment in the surveys of ports and businesses. Agencies were identified in the ports and business surveys as well as through desk research. The interviews were conducted in May/June 2010.

Ports and businesses were surveyed separately for convenience; however, in practice the division between the two is artificial and for the purpose of presenting the results the data have been aggregated unless otherwise stated.

This section provides an overview of the research procedure for the general reader; further details relating to the research procedure can be found in the appendix (sections 11 and 13). Results of the ports and business survey are presented in Section 6. Results of the supplementary agency survey are in Section 7.

4.2 Survey of ports

The UK can claim to have at least 650 individual ports, harbours and marinas, the majority of which see no commercial activity. For the purposes of this study (and for the sake of consistency with the 2004 study) a ‘port’ was defined as an entity within the terms of the Maritime Statistics Directive, i.e., one which currently or has recently handled commercial cargoes. A harbour that handles fish landed from commercially fishing boats is also considered to be a ‘port’ regardless of whether commercial cargoes are also handled.

A list of port authorities/operators was provided by DfT for use as a database for the survey of ports. The list comprised 161 unique contacts, of which:

- 21 were ABP ports
- 55 were major ports (non-ABP)
- 73 were minor ports (non-ABP)
- 12 were fishing ports.

All of these ports were invited to participate to maximise the response rate. Respondents were contacted by telephone to explain the purpose of the research, outline the type of information required and obtain agreement to participate. A short qualitative interview was

conducted with each respondent to provide context for the analysis phase and encourage participation. These preliminary interviews were used to explore:

1. Whether there had been any changes in the facilities, the main activities, the amount or type of cargo or passengers and what impact this had on employment since the previous survey was conducted
2. How and whether the recession has reduced the quantities of cargo or passengers in ports, how they have responded, what effect this has had on employment and what they expect to happen over the next two to three years.

The initial interview also provided an opportunity to confirm whether the respondent could provide data for the whole port as the management of some of the larger ports is undertaken by multiple individuals. Where the first respondent was only able to provide data for part of the port, attempts were made to collect data for the whole port by speaking to individuals responsible for the remaining activities of the port (as identified in the interview with the first respondent).

Following the initial interview, a questionnaire was sent to each respondent agreeing to participate to be completed in electronic format.

Respondents that could not participate electronically were offered the opportunity to respond by fax or as a last resort via telephone. Non-response was monitored and followed up by telephone and a helpline number was provided to deal with respondent queries regarding the research; this number was sent out with the electronic questionnaire.

Respondents were re-contacted following their submission of a completed questionnaire where clarification was required to produce the employment and accident rate statistics.

A total of 130 individuals from non-ABP ports were interviewed and asked to complete an electronic questionnaire; the responses received provided comprehensive employment and accident data for 77 non-ABP ports. ABP provided aggregated[6] employment and accident data for the 21 ABP ports.

The table below summarises the number of major, minor and fishing ports from which comprehensive data were obtained in the survey:

Data source	Population	Number where comprehensive employment and accident data were obtained for the study	Response rate
ABP (of which 12 major, 9 minor)	21	21	100%
Non ABP major ports	55	23	42%
Non ABP minor ports	73	47	64%
Fishing ports	12	7	58%
Total	**161**	**98**	**61%**

[6] As detailed information for individual ABP ports was not available, detailed breakdowns of employment required a degree of estimation. However, this has no implications for the accuracy of the overall employment and accident rate estimates.

4.3 Survey of businesses

The survey of businesses commenced approximately one month after the survey of ports to ensure that there was no duplication between the ports and business surveys.

All businesses located on ports were interviewed regardless of whether their business activity was related to the port. This provided data on the number of full-time equivalent employees who are partially related or unrelated to the operation of port.

The survey of businesses on or related to ports comprised:

- **969 interviews with businesses based on or near to the port estate**
  Businesses were selected at random from a database constructed from:
  1. **Port handbooks (where available)**
  2. **Commercial databases using port postcodes**
     A sample of businesses located on or within the vicinity of ports using postcode data was obtained for all ports invited to participate in the ports survey.[7] Work was then undertaken in collaboration with DfT to determine the range of postcodes applicable to each port. The agreed postcodes were then used in specifying the sample for the business survey[8].

- **429 interviews with businesses located elsewhere in the UK in sectors directly related to ports**
  These businesses were selected at random by SIC code from a commercial database as follows:
  - **SIC 6311 – Cargo handling**
  - **SIC 6322 – Other supporting water transport activities**
  - **SIC 6340 – Other transport activities**
  - **SIC 6110 – Water transport[9].**

[7] i.e. all major and minor ports reporting to DfT under the Maritime Statistics Directive (approximately 140 ports) plus fishing ports.

[8] Some 6,400 port postcodes were supplied by DfT. This list was compiled by selecting those postcodes which included port estates, based on visual inspection of postcode maps overlying Ordnance Survey digital mapping, with reference to published port estate maps where available. The postcode maps used were the MarkerMap REGIONS postcode point and boundary GIS product, based on the full Ordnance Survey Code-Point data set, with polygons created by Dotted Eyes Ltd, with a reference date of February 2009. Many of these postcodes will also extend outside port estates, so they only give an indication of businesses potentially on or near ports. Businesses within these postcodes, but not actually on port estates, were identified as such on initial contact within the survey, and re-allocated to the appropriate population grouping as required.

[9] The sample of businesses from the water transport SIC code (SIC 6110) was included to capture on-shore employees for organisations in this sector that, despite not being in a postcode identified as port related were in fact based on a port estate. Off shore employment was not counted; similarly on-shore employment was excluded from the estimates where the company was not based on the port estate. Care was taken to make

The business survey was conducted via telephone to ensure that:

- A representative sample was obtained (rather than relying on possibly self-selecting respondents)
- A good response rate was achieved and the target quota of around 1,400 interviews was met
- There was opportunity to probe and explore responses.

it clear when asking for employment and accident data that seafarers working at sea should not be included.

4.4 Survey of agencies and labour supply companies

The survey of agencies and labour supply companies was a supplementary study primarily conducted to verify the employment estimates relating to agency workers obtained in the ports and business surveys.

The sample of agencies was initially identified in two ways:

1. As part of the port authority/operator survey respondents were asked whether they obtained any staff from employment agencies or labour supply companies and, if so, which they use.
2. Agencies based close to port estates were obtained from a commercial database from Experian; the postcodes used to specify the sample were the same as for the business survey. The database was filtered by SIC code and postcode to target agencies operating within the vicinity of the port.

Identifying agencies and labour supply companies supplying workers to ports proved to be difficult therefore various other smaller supplementary sources were used to obtain comprehensive coverage of the market:

1. Where respondent ports had mentioned agency workers, but had not supplied contact details for the agency/labour supply company that they use the respondent was re-contacted where possible to find out if they would be willing to share this information.
2. Where it was not possible to obtain contact information from the ports regarding the agencies they had used, the responses were triangulated with respondent agencies in the area to identify any gaps.
3. Agencies that were mentioned in interviews with businesses were added to the sample for the agencies element.
4. The Ports Skills and Safety website provided some contacts, as did the steering group for this study.
5. Various Internet sources were reviewed including Agency Central, and Jobfit, etc; these were filtered using port related terms.
6. A second commercial database was filtered by SIC code to include some general recruitment agencies located anywhere in the UK to review whether these were supplying workers to the ports.
7. All agencies identified were asked if they knew of any other agencies either locally or nationally that supplied workers to Ports.

From a total sample of approximately 250 records approximately 50 organisations were identified as supplying workers to UK ports. 45 of these were interviewed in full.

The results of the agency survey are summarised in section 7.

5 Estimation procedure

5.1 Direct employment

Direct employment was entirely quantified using the results of the ports and business surveys.

Following the completion of fieldwork, each interview conducted was assigned a weight derived by dividing the number of organisations in the population from which the respondent organisation was drawn by the total number of respondent organisations that were drawn from that population. This process is consistent with the approach adopted in the 2004/05 study and is described in full in the appendix (section 11).

5.2 Indirect and induced employment

5.2.1 Introduction

Port activity has a knock on employment effect in other sectors of the economy as:

- Purchases made as a result of port activity create and sustain employment along the supply chain – indirect employment
- The expenditure of those deriving their incomes from the direct and indirect impacts of port activity creates and sustains employment in other sectors of the economy – induced employment.

As the magnitude of these indirect and induced employment effects are specifically related to the direct activities of the port, they can be estimated by applying "multiplier" factors to estimates of direct employment. However, this is not a precise science – the exact magnitude of knock on employment effects will vary from port to port and will also depend on how the scope of related activity is defined.

To explore the potential magnitude of indirect and induced employment effects, various independent studies relating to port employment were reviewed to derive a range of multiplier factors. This range of multiplier factors was then used to calculate a range of estimates for what the indirect and induced employment effects might be, depending on which factors/assumptions are used[10].

This section outlines the multipliers derived from the independent studies reviewed in the course of the study and describes how they have been applied to the results of the survey to obtain a range of values for indirect and induced employment effects.

[10] It is important to note that the resulting ranges of values for indirect and induced employment are fundamentally different to the ranges presented for direct employment (on and off port) and on port employment estimates. Ranges presented for survey based estimates reflect the inbuilt variation associated with making a sample based estimate; the ranges presented for indirect and induced employment are subject to the assumptions of the individual studies from which the multiplier factors have been derived.

5.2.2 Method

Desk research was conducted to obtain a range of values for two types of multiplier pertinent to this study of UK port employment:

- A supply linkage multiplier (referred to as an indirect multiplier) due to purchases made as a result of port activity and further purchases associated with linked firms along the supply chain.

  An indirect multiplier of 1.2 means that for every 100 direct jobs generated by port related activities, 20 indirect jobs will also be generated.

- An income multiplier (referred to as a consumption or induced multiplier) associated with local expenditure as a result of those who derive incomes from the direct and supply linkage impacts of port activity.

  An induced multiplier of 1.2 means that for every 100 direct or indirect jobs generated by port related activities, 20 induced jobs will also be generated.

Multipliers in individual studies can be local, regional or national. More localised multipliers tend to be smaller, because a larger share of income will be spent outside of the area under analysis. This study has used as far as possible national multipliers as the objective of the study was to quantify national employment and accident rates; however, as many of the studies exploring the economic impact of ports are designed to quantify the impact of port activity on the regional economy, in some instances only regional multipliers are available.

5.2.3 Summary of studies considered and multipliers derived

The multipliers used in this report to provide a range of values for indirect and induced employment effects are based on data from the following studies:

Study[11]	**Summary**
(2006) Port of Dover Economic Impact Assessment	A survey-based research study undertaken to assess the direct, indirect and induced effects associated with the port and related activities. Direct employment estimates were based on survey responses, though employment was estimated where no information was provided using other sources and local knowledge. Direct employment estimates included ferry and shipping operators. Indirect employment estimates were calculated by converting the value of goods and services identified in the survey into indirect employment using ratios of business turnover to employees from previous studies. Indirect employment was defined as employment in both port and ship suppliers.

[11] The URLs provided here were last accessed 5 September 2010.

	Induced effects were estimated by converting survey responses relating to employment cost into employment based on turnover per job rate based on evidence from previous comparable studies.
(2009) Ports for London Authority Economic Impact Summary	A survey-based research study undertaken to update the findings of research undertaken in 2003 on behalf of Port of London Authority to determine the economic impact of ports located in the Thames Gateway. Direct employment estimates were obtained from survey responses and included port and shipping operators. Indirect effects were estimated on the basis of survey evidence regarding purchases of goods and services, using a similar approach to that used in the economic impact assessment of the port of Dover. Indirect employment was defined as employment in both port and ship suppliers. The study used travel to work data to predict the place of residence of direct employees in the sector. Assumptions were then used to estimate the proportion of wages which were spent locally and in the wider area.
(2005) Economic importance of the Belgian ports	A desk research study conducted to illustrate the economic importance of Belgian ports to the Belgian economy. Direct employment was calculated using annual accounts data from the Central Balance Sheet Office and included port and shipping operators. Indirect effects were estimated in terms of value added and employment on the basis of data from the National Accounts Institute. Indirect employment was defined as employment in both port and ship suppliers.
(2008) English Partnership's additionality guide (RDA Guidance update)	The Additionality Guide provides 'ready-reckoners' for composite multiplier effects (indirect and induced) at the neighbourhood and regional levels for business activities with low, medium, and high local supply chain linkages. The Guide does not provide a multiplier for ports specifically, but advises that the majority of activities will be in the medium supply chain linkage category citing retail as an example of business activities with low supply chain linkages and the nuclear fuel industry in Scotland as an example of a business activity with high supply chain linkages.
(2009) The economic contribution of ports to the UK economy – Oxford Economics	A desk research study commissioned by the UK Major Ports Group (UKMPG) and British Ports Association (BPA). The study used data from the Office of National Statistics (ONS) to estimate employment in 18 UK ports by identifying organisations that: • Were located in electoral wards identified as containing one of the ports; and • Fell into one of a wide range of SIC codes considered by the study to be port related. The data was then extrapolated to draw conclusions about the impact of all ports on the UK economy. The study estimated indirect and induced employment using multipliers. The study identified two types of multiplier: The Type I (or indirect) multiplier shows the impact on the supply chain as a result of the port sector's purchases of inputs. It is calculated as follows:

	(Direct + Indirect employment) / Direct employment The Type II (or induced) multiplier shows the additional impacts arising from the consumer spending of those who derive their incomes from the direct and supply linkage impacts of the port sector. It is calculated as follows: (Direct + Indirect + Induced employment) / Direct employment The reader should note that whilst the Type II multiplier cited in the Oxford Economics report is described as an induced multiplier, it is actually equivalent what is referred to in this report as a composite multiplier as it enables the calculation of all indirect and induced employment effects from direct employment (rather than just induced employment effects). Oxford Economics used data from ONS to estimate indirect employment effects and estimated induced effects using its own UK macroeconomic model.

Summaries of the multipliers derived from each study are outlined in the table below:

Study[1]	**Indirect Multiplier**	**Induced Multiplier**	**Composite Multiplier**
(2006) Port of Dover Economic Impact Assessment[2]	1.64	1.34	2.20
(2009) Ports for London Authority Economic Impact Summary[2]	1.17	1.10	1.28
(2005) Economic importance of the Belgian ports[2]	1.76	n/a	
(2009) Economic impact of ports and the shipping industry in 2007, Oxford Economics[3]	2.13	1.29	2.74
(2008) English Partnership's additionality guide (RDA Guidance update)[4]	1.23	1.23	1.50
Average multiplier	1.58	1.24	1.93
Range	1.17->2.13	1.1->1.34	1.28->2.74

Notes:

1. Multipliers for Dover, Belgian ports and the Oxford Economics study are national multipliers; those for London and obtained from the English Partnership's additionality guide are regional. Therefore, the lower bounds of estimates relating to indirect and induced employment should be considered conservative.

2. The multipliers for Dover, London and Belgian ports are derived from the reported estimates of direct, indirect and induced employment.

3. The multipliers cited for the Oxford Economics study are equivalent to those used to calculate indirect and induced employment effects. The indirect multiplier is equivalent to the Type I multiplier reported in the Oxford Economics study; the composite multiplier is equivalent to the Type II multiplier. The induced multiplier was derived by dividing the Type II multiplier by the Type I multiplier.

4. The indirect and induced multipliers cited for the English Partnership's additionality guide were derived from the composite multiplier; as in the 2004/05 study it was assumed (in the absence of any other information) that the individual multipliers were equal.

5.2.4 Other studies considered during desk research

The following studies were also considered, but the multipliers derived from these studies were not used to calculate indirect and induced employment due to concerns that they were unrepresentative.

Study	Indirect Multiplier	Induced Multiplier	Composite Multiplier	Reason for exclusion
(2007) Economic Impact assessment of Aberdeen Harbour	3.13	1.13	3.54	The study indicates that indirect employment resulting from Aberdeen Harbour is more than double direct employment (2,340 indirect employees compared to 1,100 direct employees). However, the majority of other studies found/estimated that indirect employment was approximately the same or lower than direct employment This difference is likely to be due to the fact that Aberdeen is a highly specialised port serving the offshore sector. Therefore it was considered atypical and not suitable for inclusion.
(2009) Port of Seattle Economic impact assessment	1.36	1.90	2.59	The induced multiplier for the Port of Seattle is substantially higher than the indirect multiplier; in all other studies induced employment effects were approximately the same or lower than indirect employment effects as one would more typically expect.

5.2.5 How the chosen multipliers were used to calculate a range of estimates for indirect and induced employment

To obtain an indication of the magnitude of the indirect and induced employment effects, ranges of values have been calculated using the minimum and maximum multipliers from the studies described in section 5.2.3. A central estimate has also been calculated using the average indirect and induced employment multipliers. However, all estimates should

be interpreted as an indication of the indirect and induced employment effects based on a particular choice of factors/assumptions rather than an absolute value.

The chosen multipliers were applied to the study results as follows:

- by applying the indirect multiplier to direct employment on and off port (and then subtracting indirect on-port employment estimated from the survey to avoid double counting as some indirect employment will already be accounted for in the on-port indirect employment estimates from the business survey);
- by applying the induced multiplier to the sum of direct and indirect employment on and off port. We have assumed for the purpose of this exercise that all induced employment is off port.

Multipliers are not applied to partially related or unrelated employment on port as only the first order indirect and induced employment effects attributable to directly port related businesses are within the scope of this exercise.

6 Results – ports and business survey

6.1 Introduction

This section outlines the main results of the business and ports surveys; however, the following additional data tables are included in the appendix (section 12):

- Section 12.1: A breakdown of on port direct employment by function
- Section 12.2: A breakdown of off port direct employment by function
- Section 12.3: A breakdown of all direct employment by function
- Section 12.4: A series of tables illustrating the profile of on port and direct off port businesses (in terms of the estimated number of organisations rather than employment) including a breakdown of organisations by:
    - Employment module
    - Turnover
    - Number of employees
    - Activity sector (direct businesses only)
    - Government Office Region
- Section 12.5: A breakdown of employment and accidents by port size
- Section 12.6: A breakdown of employment (ftes) by Government Office Region

When interpreting the results it is important to note the sources for each of the estimates and the estimated ranges:

- Estimates for direct, indirect, partially related and unrelated on port employment (modules A1, A3, C, E), and estimates of direct off port employment (module A2) are derived from the port authority and port businesses surveys. The ranges given (based on 95 per cent statistical confidence limits) reflect the substantial variability in the populations surveyed. Single absolute value estimates have been given, centred on the ranges, and these have been used in summarising results.

- Estimates for indirect and induced off port employment (modules A4 and B) have been produced by applying multipliers derived from other studies, not the surveys. The ranges for these estimates are based on maximum and minimum values for the multipliers derived from the studies considered and are therefore wider than the ranges for survey estimated modules. A single absolute estimate has also been calculated using the average indirect and induced multipliers.

The breakdown of employment into occupations and functions (particularly the detailed breakdowns of the latter as presented in the appendix of this report – sections 12.1 to 12.3) are subject to a significant degree of uncertainty and therefore changes observed between the 2004/05 and 2009/10 studies in the proportion of people employed in specific job functions should be treated with caution.

The results presented in this section should not be directly compared with those obtained in the 2004/05 survey as changes were made to the approach in 2009/10 to improve the accuracy of the results. Any reader wishing to understand how the results of this study

compare to those obtained in the 2004/05 study should refer to section 6.4 which outlines the outcomes of analysis undertaken to explore the impact of methodological changes on the results.

6.2 Employment

6.2.1 Employment summary

A summary of estimates for each employment module is given in the table below:

Module		Total employees (ftes)[2]	Range[1]
	On the port estate		
A1	Direct	37,000[3]	30,500 -> 43,500
A3	Indirect	700	500 -> 1,000
C	Partially related	5,000	3,700 -> 6,300
E	Unrelated	6,500	2,900 -> 10,000
	Off the port estate		
A2	Direct	21,100	18,800 -> 23,400
A4	Indirect (indicative only)	33,000	9,000 -> 65,000
B	Induced (indicative only)	22,000	9,000 -> 31,000

Notes:

1. 95% confidence intervals for values derived from the survey part of the study i.e. modules A1, A3, C, E, and A2. The range was calculated as follows:
    a. The 95% confidence interval for the mean number of employees in each module (i.e. the lower bound for the mean and the upper bound) was calculated
    b. The upper and lower bounds for the mean were then expressed as a proportion of the observed mean and applied to the central estimate for total employees to get the range.

    The ranges given for modules A4 and B have been estimated using multipliers from other studies as described in section 5 and, therefore, are fundamentally different from the ranges presented for the other modules. Those based on confidence intervals (modules A1, A3, C, E and A2) reflect the inbuilt variation associated with the survey estimate; those for A4 and B provide an indication of what the possible range of values might be for these modules, depending on your choice of multiplier factors/assumptions.
2. Figures are rounded to the nearest 100 fte employees.
3. This figure comprises approximately 12,500 employed by port authorities/operators and 24,500 employed by port businesses. Note that some port authorities include management and administration only as operational functions are conducted separately by port businesses.

From the survey it is estimated that 37,000 full time equivalent employees (range 30,500 – 43,500) work on the port estate in directly related jobs and around 21,100 ftes (range 18,800 – 23,400) off the port estate – total 58,100 (range 53,000 – 63,200) people working directly on port related activities either on or off the port estate.

There are also approximately 12,200 other people working on the port estate (range 8,400 – 15,900), either:

- indirectly, supplying non-specialised goods and services (700 employees, range 500 – 1,000);
- in partly related jobs (such as manufacturing and where the companies use the port to import or export goods and it suits them to be so located, totalling 5,000 employees, range 3,700 – 6,300);
- Or in unrelated jobs (which have nothing to do with the port, other than leasing premises or land for example, totalling 6,500 employees, range 2,900 – 10,000).

Multipliers were used to obtain an indication of:

- Indirect employment in companies outside the port supplying non-specialised goods and services to direct companies and
- Induced employment which is employment associated with expenditure of those who derive incomes from direct and indirect companies.

However, these estimates are indicative only as the possible range of values for indirect and induced employment outside the port estate is highly dependent on the choice of multiplier factors/assumptions. On the basis of the multiplier factors described in section 5, indirect employment outside the port estate could range from approximately 9,000 to 65,000 employees and induced employment could range from 9,000 to 31,000 employees.

The survey also estimated the extent to which the employees of direct business located off-port spent time on the port, in terms of ftes. It is estimated that there are approximately 7,000 (in terms of ftes) port visitors per year; however, this estimate is uncertain as respondents found it difficult to provide accurate data relating to how much time their employees spent on UK port estates. These ‘visitors’ are employees that are already counted in the off port employment categories and so have not been included in the on port employment modules.

6.2.2 Seasonal variation and non permanent employees

The bulk of the survey work was carried out between November 2009 and March 2010[12]. The last quarter of the year tends to be a little above average for container traffic, but the first quarter below average; November and March is likely to be quiet for ferry traffic relative to the summer months, and other traffic overall is not thought to fluctuate significantly throughout the year. The survey period which gives "current" employment estimates, therefore, is likely on balance to be a quieter time of the year (which is also borne out by the results – see below).

Respondents in the business survey were asked about the number of non-permanent employees they employed currently, and also the number employed at busy and quiet

[12] The agency survey was the main exception; this was completed in June 2010.

times. To keep the questionnaire length to a minimum, respondents in the ports survey (which accounts for 12,500 direct employees) were not asked to provide this data.

The response from direct port-based businesses was that around 7 per cent of their employees were non-permanent currently reducing to 4 per cent at quiet times and rising to 14 per cent at busy times of the year. The tables below illustrate the fluctuation in temporary employment at quiet and busy times of the year.

		All employees (permanent and non-permanent) (ftes)		
On or off port	Module	Current	Busiest time	Quietest time
	Direct – not including port authorities	24,500	26,500	23,700
	Indirect	800	800	700
	Partially Related	4,900	5,000	4,300
	Unrelated	6,500	6,900	6,200
	Total on port	36,700	39,200	35,000
Off port	Direct	21,100	21,600	20,700

		Non-permanent employees as a % of all employees (fte)			Of which agency employees[1] as a % of all employees (fte)		
On or off port	Module	Current	Busiest time	Quietest time	Current	Busiest time	Quietest time
On port	Direct – not including port authorities	7%	14%	4%	4%	9%	3%
	Indirect	13%	13%	0%	0%	0%	0%
	Partially Related	14%	16%	2%	2%	7%	0%
	Unrelated	8%	13%	3%	2%	3%	2%
	Total on port	8%	14%	4%	3%	8%	2%
Off port	Direct	4%	6%	2%	0%	2%	0%

Notes:

1. Agency workers includes workers from labour supply companies and is a subset of non-permanent employees.
2. The figures presented in these tables exclude employment by port authorities (12,500 employees) as there was insufficient scope to cover this in the electronic questionnaire. Hence the figures quoted for on port direct employment are less than those reported earlier.

3. Figures are rounded to the nearest 100 fte employees. Totals may not sum exactly due to rounding error.

The figures presented here are an average figure for all job functions; for certain functions such as stevedores the proportion of non-permanent employment is greater at normal times (the survey estimates that 4 per cent of stevedores were non-permanent at the time of the survey); this proportion is below average and is likely to be much larger at busy times.

The employment figures given throughout the report refer to current employment estimated by respondents at the time of the survey.

6.2.3 Direct employment by occupation

Questions were asked to explore the occupations of direct businesses using broad occupational categories of employment. The table below outlines the proportions in each category for direct employment on and off port[1].

Occupation	Direct on port (ftes)[2]	Direct on port (%)	Direct off port[2]	Direct off port (%)
Managerial and professional	6,100	17%	4,500	21%
Administration, secretarial	5,500	15%	7,300	35%
Personal service, sales and customer service	2,400	7%	2,600	12%
Skilled trade	8,600	23%	3,100	15%
Process, plant and machinery operations	7,500	20%	2,300	11%
Elementary occupations	5,500	15%	1,200	6%
Other port employment	1,300	4%	100	0%
Total	37,000	100%	21,100	100%

Notes:

1. Covers modules A1 (direct on port, 37,000 employees) and A2 (direct off port, 21,100 employees). Direct employment is defined as employment associated with the main operation of a port and supporting activities.
2. Figures are rounded to the nearest 100 fte employees. Totals may not sum exactly due to rounding error.

Around two fifths of direct on port employment is work in process, plant and machinery operations (20%) or in skilled trades (23%), and just less than a third in management (17%) and administration (15%).

As far as off port employment is concerned, about a quarter of employees are in process, plant and machinery operations (11%) or in skilled trades (15%), and over half in management (21%) or administration (35%). The higher management and administration and customer services reflects the type of companies in this group, (including many freight forwarders, shipping agents etc).

6.2.4 Direct employment by function

Questions were also asked to companies directly involved in port activities to determine the number of employees performing different operational functions at the port.

Respondents were prompted with a series of functional roles that would be performed in the port, grouped into marine operations, cargo operations, and passenger operations (all of which included office jobs directly related to these functions), The other operational categories were port management and administration, port regulatory services engineering and maintenance.

Marine operations include activities such as harbourmasters, pilots, dredging, vessel mooring; cargo operations include cargo handlers and warehousing; passenger operations include information officers, traffic marshals security staff. The management and administration of these operational categories was also captured.

Employees that were not directly concerned with the operation of the port or its ship, cargo or passenger handling activities were categorised into a non-operational category. This included non operational employees of forwarding agents, ship brokers, importers/exporters, ship chandlers, line/shipping agents, tank cleaning, specialist equipment hire/sales, ship classification, fishing (on port), salvage activities etc.

Total employment in operational activities for on port businesses totalled 30,000, around 81 per cent of direct employment on port (37,000).

Interestingly we found that a significant number of those working in cargo operations work for organisations that are based outside the port estate; this was generally where freight forwarders based outside the port estate employed people to handle cargo on the port estate.

The proportion of jobs in each of the operational activities is outlined in the table below:

Function		**On port (ftes)**	**Off port (ftes)**	**Total (ftes)**	**Overall %**
Marine operations		4,800	1,800	6,600	11%
Cargo operations		15,000	11,000	26,000	45%
Passenger operations		2,300	200	2,500	4%
Other operations	Port management and administration	4,100	300	4,400	8%
	Port regulatory and other services	400	200	600	1%
	Professional engineering and maintenance	3,500	600	4,100	7%
Non-operational port related activities		6,900	7,000	13,900	24%
Total		37,000	21,100	58,100	100%

Notes:

1. The figures presented in this table relate to modules A1 and A2 only (i.e. direct employment)
2. Direct employment is defined as employment associated with the main operation of a port and supporting activities.
3. Figures are rounded to the nearest 100 fte employees and subject to rounding error.

A more detailed breakdown for direct organisations based on and off port is available in the appendix of this report (sections 12.1 to 12.3).

6.3 Accidents

6.3.1 Introduction

As it is difficult to quantify from regularly published sources the total number of employees working on port estates in the UK, it is also challenging to establish accident rates for UK ports. Therefore, a key objective of both this study and the original survey was to establish accident rates.

The survey asked companies about accidents notified to HSE under the accident reporting system RIDDOR[13], in the twelve months prior to the interview (or any recent 12 month period e.g. calendar year). The estimates are of the number of injuries to people, not the number of incidents reported.

The primary aim of the study was to produce an estimate of the number of accidents reported by companies which employ people on ports, and then to relate these to the total number of their employees to estimate accident rates specifically for ports.

Secondary objectives of the study were to explore accident rates for:

1. Office based employees compared to non-office based employees
2. Visitors to the port estate from off port direct businesses.

The Health and Safety Executive also estimate accident rates, basing their estimates on the nearest relevant SIC codes; however these do not accurately define the ports industry. Other accident rates for ports are available from the port industry safety body Port Skills and Safety (PSS) but these relate only to PSS members (around 88 members relating to 150 or so different sites), and are regarded by PSS as giving trends in rates only, not absolute rates for the industry. The survey estimates are compared to the HSE and PSS estimates in section 6.3.5, primarily as a check on the plausibility of the 2009/10 survey estimates.

It is likely that there are instances where employers do not report accidents to HSE and this should be borne in mind when interpreting the results presented in this section. HSE has conducted its own analysis to explore the level of under-reporting of accidents by employers; comparing the rate of reportable injury estimated from the Labour Force survey with the RIDDOR rate of reported major and over 3-day injury, the estimated level of reporting by employers was 58% in 08/09[14]. It is possible that this is a worst case scenario as the Labour Force survey relies on self reporting by respondents of instances where they have been involved in an accident at work and it is arguable that some respondents may have reported injuries in the survey which might not have met RIDDOR criteria. It is also expected that reporting to HSE is much more complete for more severe injuries than less severe ones.

[13] Further information about RIDDOR can be found in the appendix (see section 10).
[14] See http://www.hse.gov.uk/statistics/overall/hssh0809.pdf p.10.

However, the reader should bear in mind when interpreting the results of this study (which specifically asks employers about RIDDOR reportable injuries) that the accidents described will be those reported to HSE and also subject to under-reporting.

6.3.2 Accident rates

Accident rates have been estimated from the grossed up results of the study by dividing the number of accidents by the number of employees. Separate estimates have been made of accident rates for:

- direct businesses and port authorities on ports
- non-direct businesses on ports (i.e. indirect, partially related and unrelated)
- all businesses and port authorities on ports

The table below summarises the accident rates for these groups.

		Estimated number of reportable accidents					
		Fatal	Major	>3 day[1]	Total	Rate per 100,000 employees (all severities)	Number of employees (ftes)
Direct on port	All employees	4	46	371	421	1,100	37,000
	Agency staff	0	10	6	16	1,000	1,550
Non-direct on port[2]	All employees	0	9	63	72	600	12,250
	Agency staff	0	0	0	0	0	250
All businesses and port authorities on port	All employees	4	65	440	509	1,000	49,250

Notes:

1. An over 3 day injury which is not major but which results in the injured person being away from work for more than three days.
2. Indirect, partially related or unrelated employment
3. Agency staff are a subset of all employees.
4. A significant amount of work is also carried out on ports by visiting employees of direct off port companies. Estimates for this group are made in section 6.3.4

The accident rate for direct businesses on port is estimated to be 1.1% (1,100 per 100,000 employees). If the upper and lower bounds for the estimated number of direct employees are used in the calculation then the accident range is 0.9 - 1.4 % (900 to 1,400 per 100,000 employees). The accident rate for other businesses on port is 0.6 % (600 per 100,000 employees).

6.3.3 Office based employees vs non-office based employees (businesses only)

As office based employees are less likely to be at risk from port activities than those employed in more active roles, it is of interest to draw a distinction between the accident rate statistics for office based and non-office based employees. It was not feasible to collect sufficient detail in the survey to produce comprehensive accident rate estimates for different occupational groups, but some limited further differentiation was possible.

All respondents in the business survey were asked to indicate the number of accidents that had involved office activities. The number of office based fte employees was investigated in two ways:

1. Respondents in the survey of businesses were asked how many of their employees were entirely (100%) office based
2. As workers that are not entirely (i.e. 100%) office based will spend at least some of their working time in the office, respondents from the business survey were re-contacted at random to explore the approximate proportion of working time that direct employees performing different functions spend in the office. This enabled an estimate to be made of the effective number of full time equivalent employees in the office and not in the office in the year.

The objective was to obtain an indication of the relative risks to office based and non-office based workers of port activities rather than to produce estimates for the absolute number of accidents to workers in each category. To keep the survey length to a minimum, it was decided to exclude questions relating to whether accidents occurred to office based staff or involved office activities in the port authority surveys. Therefore all results presented in this section are based solely on responses from the business survey and do not cover those employed by port authorities covered in the ports survey.

The tables in this section outline the accident rates using each approach.

Estimate using approach 1 – 100% office based – companies on port only[1]

	Number of accidents and rate					
	Fatal	**Major**	**>3 day**	**Total (all severities)**	**Rate per 100,000 employees**	**Number of Employees (ftes)**
Accidents occurring to employees of direct companies on port[2]	**2**	**26**	**181**	**209**	**850**	**24,500**
of which:						
100% Office Based	*0*	*2*	*2*	*4*	*50*	*8,000*
Not 100% Office Based	*2*	*24*	*179*	*205*	*1,250*	*16,500*
Accidents occurring to employees of non-direct companies on port[3]	**0**	**9**	**63**	**72**	**600**	**12,200**
of which:						
100% Office Based	*0*	*0*	*0*	*0*	*-*	*2,600*
Not 100% Office Based	*0*	*9*	*63*	*72*	*750*	*9,600*
Accidents occurring to employees of all companies on port	2	35	244	281	750	36,700
of which:						
100% Office Based	*0*	*2*	*2*	*4*	*50*	*10,700*
Not 100% Office Based	*2*	*33*	*242*	*277*	*1,050*	*26,000*

Notes:

1. The figures presented in this table do not include employment / accidents for employees of port authorities; to keep the survey length to a minimum it was decided to exclude questions relating to whether accidents occurred to office based staff or involved office activities in the port authority surveys.

2. The figures presented here for direct companies on port corresponds to module A1, excluding those interviewed in the port authority survey as described earlier in this section. As port authority responses are not included in these tables, total employment and accident figures are lower for this category than reported earlier.

3. Figures presented for non-direct companies on port correspond to modules A3, C and E. The figures for non-direct companies on port correspond to the total figures reported as all port authority employment is categorised as direct.

The key conclusion from the analysis conducted using approach 1 is that, among direct on port businesses, the accident rate for workers who are 'not 100% office based' is approximately 50% higher than the overall accident rate for all direct on port companies.

Estimate using approach 2 – direct companies on port only

A sample of respondents from direct businesses on port were re-contacted at random to explore the approximate proportion of the time that direct employees performing different functions spend in the office. The results are illustrated in the table below:

	Number of respondents providing an estimate	**Time spent in the office as a percentage of all working time, average (%)**
Dredging	3	20
Harbour Masters	12	55
Pilots	6	13
VTS Staff	3	98
Lock Operations	1	40
Surveying	8	36
Tug Operations	5	6
Vessel Mooring	10	26
Other Marine Operations	4	33
Stevedores/Dockers	15	7
Fork Lift Truck operations	22	8
Cargo Handlers	18	8
Warehouse Workers	21	15
Clerks	43	97
Other Cargo Operations	6	62
Information Officers	11	77
Traffic Marshalls	2	25

Baggage Handlers	1	0
Security Staff	6	33
Other Passenger Operations	3	38
Port Management and Admin	16	91
Port Regulatory and other services	2	98
Professional engineering and maintenance	16	21
Other Port Related activities	10	76

Whilst these data can be considered indicative only due to the small sample sizes and significant degree of uncertainty around each estimate, they can be used to generate an indicative accident rate for employees in the office and out of the office which more appropriately reflects the increased risk to employees spending time outside the office on the port estate.

The table below illustrates the accident rates for employees in the office and not in the office, calculated using approach 2:

Accidents occurring to employees of direct companies on port	**Number of accidents and rate**					
	Fatal	**Major**	**>3 day**	**Total (all severities)**	**Rate per 100,000 employees[3]**	**Number of Employees (ftes)[2]**
	2	26	181	209	850	24,500
of which:						
In the office	0	2	2	4	50	12,300
Not in the office	2	24	179	205	1,700	12,200

Notes:

1. The figures presented in this table do not include employment / accidents for employees of port authorities; to keep the survey length to a minimum it was decided to exclude questions relating to whether accidents occurred to office based staff or involved office activities in the port authority surveys.

2. The number of employees used for calculating the accident rates for in the office and not in the office is based on estimates provided by respondents who were re-contacted to explore the approximate proportion of the time that direct employees performing different functions spend in the office.

3. The accident rate estimates for in the office and not in the office can be considered indicative only of the true accident rates in and out of the office.

The key conclusions from the analysis conducted using approach 2 are that:

1. The accident rate for employees of direct companies on port whilst ‘not in the office’ is around double the rate of that across direct companies on port as a whole
2. An employee of a direct on port company is more than fifty times more likely to have an accident (across all severities) whilst ‘not in the office’ compared to ‘in the office’.

6.3.4 Visitors

A secondary objective of the study was to produce indicative accident rates for visitors to the port estate. However, it is difficult to do this accurately as many respondents are unable to specify exactly how many visitors they have welcomed to the port estate. Therefore, to get an indication of the maximum accident rate for off port direct employees visiting the port estate:

1. Direct businesses based outside the port estate were asked to estimate how much time their employees spent on the port estate; these data were converted into an annual figure and expressed in 'visitor-years' – where 1 visitor year is equivalent to a single full-time equivalent employee working on the estate for one year.
2. Business and port respondents were asked to indicate whether any accidents had occurred to any of their visitors (excluding passengers). It is possible that the responses to this question encompassed a larger 'population' of visitors than the employees of direct off-port businesses referred to above (e.g. visiting road hauliers, other business visitors not falling within the scope of 'direct' businesses, sightseers).

Using this approach, the maximum accident rate for visitors from direct off port businesses to the port is estimated to be 0.8% (800 per 100,000 visitor-years) on average, annually.

	Fatal	Major	>3 day	Total (all severities)	Estimated "visitor-years"	Maximum rate per 100,000 visitor years
Reported by ports – visitors excluding passengers	2	3	9	57	7,000	800
Reported by businesses - visitors excluding passengers	2	2	39			

6.3.5 Accident statistics in context

Both Port Skills and Safety (PSS) and HSE produce accident statistics relating to port related activities in the UK. The purpose of this section is to compare the accident estimates obtained in the 2009/10 survey with those indicated by PSS and HSE for the nearest equivalent period. The comparison is primarily intended as a plausibility check of the survey results.

Port Skills and Safety (PSS)
PSS is the ports industry's organisation for health, safety, skills and standards. Formed in 2002, it works closely with its members to raise health, safety and skills standards in UK ports.

PSS has collected RIDDOR accident statistics from its members on an annual basis since 1997. In 2009, 98% of PSS members voluntarily submitted their accident statistics to PSS. PSS members tend to be organisations involved in operational activities on the port such as cargo operations, and therefore one might expect the accident rates reported by PSS for its members to be higher than those for port businesses in general.

In this survey, respondents were asked whether they were PSS members, in order that separate results for PSS members could be estimated, and checked against those of the PSS membership surveys. The table below outlines the results of this survey for PSS members (including the upper and lower bounds for these estimates) and data provided by PSS for 2009. It illustrates that PSS estimates for 2009 relating to the total employment and accident rates for its members are within the confidence intervals of estimates obtained in this study. As PSS reports accident rates in percentage terms, comparisons are drawn in percentage terms rather than in terms of accidents per 100,000 employees.

PSS members only	Number of employees (ftes)	Fatal	Major	>3 day	Total (all severities)	Incidence rate, all severities (per cent)
Central estimate for the 2009/10 study	17,347	2	28	242	271	1.6
Lower bound for 2009/10 study estimate	12,553	0	10	78	87	0.7
Upper bound for 2009/study estimate	22,141	4	45	405	454	2.1
PSS members 2009 statistics	18,994.5	0	31	338	369	2.0

As expected, given that PSS members tend to be involved in operational activities, the survey based estimate of accident rates for PSS members is somewhat higher than the average for all direct on-port companies in the survey. At around 50% higher than the average, this differential is similar to that for the 'not 100% office based' group discussed in Section 6.3.3.

Only one PSS member in the survey indicated that a fatal accident had occurred to one of their employees. Two fatalities were estimated when the data were weighted; however, it is likely that only one occurred. The reader should bear in mind when interpreting the results that the period covered by this survey and the timetable over which PSS members submit information will be different.

HSE estimates relating to accidents in the docks industry

The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR) places a legal duty on employers, self-employed people and people in control of premises to report work-related deaths, major injuries or over-three-day injuries along with work related diseases and dangerous occurrences (near miss accidents) to HSE.

As part of this process, the SIC code of the organisation reporting the accident is recorded and can be used to examine the number and type of accidents occurring in particular industries.

HSE periodically publishes accident statistics for the docks industry; this covers accidents to all employees of organisations in SICs 6110, 6120, 6322 and 6311. However, these estimates are difficult to compare directly with the estimate obtained in the 2009/10 survey as the HSE statistics published for the docks industry:

- Include accidents occurring to employees in unrelated industries (e.g. SIC 6311 covers all modes of transport rather than just cargo handling at ports); and
- Does not cover accidents occurring on port where the business is not in SICs 6110, 6120, 6322 and 6311 (for example, relevant SIC codes would include SIC 5190 ship chandlers, SIC 3511 ship repair and maintenance, SIC 9002 waste disposal, SIC 7524 police/security etc).

The difference in coverage between the 2009/10 survey and statistics published by HSE relating to the docks industry means that one will inevitably observe differences in the statistics if they are directly compared.

The figures below (reproduced here with permission from HSE) are RIDDOR statistics for 2006/07, 2007/08 and 2008/09 for the docks industry (SIC codes 6110, 6120, 6322, 6311) and are included for the interest of the reader. The reader should note that the figures below exclude accidents to members of the public as the primary objective of this study was to assess accidents to those working on UK ports.

Docks RIDDOR statistics			
	2006/07	2007/08	2008/09
Fatal	4	2	0
Major	129	166	113
Over 3 day	742	753	701
Total	**875**	**921**	**814**

Cargo handling (SIC 6311 only)			
	2006/07	2007/08	2008/09
Fatal	1	1	0
Major	42	62	31
Over 3 day	369	416	351
Total	**412**	**479**	**382**

Other supporting water transport activities (SIC 6322 only)			
	2006/07	2007/08	2008/09
Fatal	3	0	0
Major	52	71	43
Over 3 day	259	240	218
Total	**314**	**311**	**261**

Conclusion
Broad comparisons with PSS statistics suggest that the accident statistics collected in the 2009/10 study are credible; however, it is not possible to directly compare the results of the 2009/10 study with HSE RIDDOR statistics due to the significant difference in coverage between the survey and the statistics published relating to the docks industry.

6.4 Comparability with 2004/05 study and factors to consider in interpreting the 2009/10 results

6.4.1 Introduction

The results of the 2009/10 study of port employment and accident rates described in this report should not be directly compared with those of the previous equivalent study, conducted in 2004/05.

The methodology adopted in the 2009/10 study is, in many respects, similar to that adopted in the 2004/05 study. However, there are a number of important methodological differences (through changes made to improve the accuracy and comprehensiveness of overall employment estimates) that limit the extent to which the results of the two studies can be directly compared.

For any reader wishing to understand how the results of this study compare to those obtained in the 2004/05, this section:

a. Describes the methodological differences between the two studies
b. Explains how these differences affect the results produced

6.4.2 Summary of key methodological differences between the 2009/10 and 2004/05 studies and general implications for comparability

The key methodological differences between the 2009/10 and 2004/05 studies of port employment and accident rates are as follows:

1. **Organisations in SIC 6110 (water transport) <u>were not</u> included in the off-port direct sectors sample in the 2004/05 study. Organisations in SIC 6110 (water transport) <u>were</u> included in the off-port direct sectors sample in the 2009/10 study to ensure that employees of organisations in SIC 6110 actually based on port were captured in employment estimates.**

   Analysis of the data collected in 2009/10 indicates that respondents from organisations in SIC 6110 account for 2,000 on port direct employees (weighted), module A1. However, the majority of these employees were identified from interviews with organisations from the on port sample, and so would have been picked up in the survey even without the addition of the SIC6110 list. This suggests the majority of these businesses would similarly have been picked up in 2004/5 and so the implications for comparability are negligible.

2. **The 2004/05 study relied mainly upon sample from the port handbooks. It used sample from the commercial database supplier Experian solely in the instances where a port handbook was not available to obtain a sample of businesses in the following SIC 2003 codes:**
    - 6311 – cargo handling
    - 6322 – other supporting water transport activities
    - 6340 – activities of other transport agencies.

    The 2009/10 study relied more extensively on sample from the commercial database supplier Experian to identify businesses operating on or just outside the port estate; any businesses considered to be on the port estate based on their postcode (see point 3 also) were included in the initial sample for the study and completely unrelated businesses were screened out and the relevant population figures adjusted.

    Where port handbooks were available in the 2004/05 study, they were used as the sole database of on port organisations for that particular port; however, the 2009/10 study used sample from Experian to supplement the sample of businesses on ports for which up-to-date handbooks were available.

    It is possible that Experian's coverage of direct businesses operating in individual ports may not be as comprehensive as that available from a port handbook. However, up-to-date port handbooks were less prevalent in 2009/10 than in 2004/05 and so it was necessary to use commercial databases to ensure that all ports were covered in the study.

    The hybrid approach of using port handbooks where they were available (including retaining contacts from port handbooks used in the 2004/05 study where up-to-date handbooks were not available), and supplementing this with data from Experian, provided the most comprehensive practical means of obtaining a sample for the purpose of this study. The intention was that using Experian databases would provide improved coverage of organisations in port related sectors based just outside the port estate.

    The implications for comparability are impossible to quantify with precision due to the fact that there have been significant changes in the market since the 2004/05 study. It is therefore not possible to identify whether absolute differences in population figures are due to a change in the market or a change in the database / sample method. However, the following potential implications have been observed:

a. First, analysis of the profile of organisations interviewed in the 2009/10 study indicates that in comparison to the on port handbooks, organisations interviewed from the Experian database of organisations *considered to be on port* prior to interview included a larger proportion of indirect, partially related and unrelated businesses:

Nature of business activity	Port handbook sample	Experian sample *considered to be on port* prior to interview
Direct	63%	50%
Indirect	6%	5%
Partially Related	13%	19%
Unrelated	18%	26%
Total	100%	100%

This probably reflects the inclusion - in the Experian list - of businesses which would not have appeared in the port handbook, either because:

1. They shared a postcode with on port businesses but were actually just outside the port estate;
2. Their business was not sufficiently related to port activity to be included in the handbooks.

Therefore it seems likely that using Experian databases to supplement port handbooks sample increased, in the 2009-10 study, the representation of:

1. Organisations operating on the port estate but less closely port related
2. Organisations in port related sectors based just outside the port estate.

b. Second, unless they were in SICs 63110, 63220, 6340[15], organisations interviewed in the 2009/10 study from the Experian on port database may not have been covered under the 2004/05 approach. Analysis of the employment figures provided by such organisations indicates that they account for approximately 7,800 additional employees (ftes) in the 2009/10 study.

The table below provides a breakdown of this analysis by employment module:

Employment module	Maximum additional employees as a result of supplementing port handbooks with sample from Experian in 2009/10
On port direct	2,500
On port indirect	100
On port partially related	1,200
On port unrelated	3,800
Off port direct	200
Total	**7,800**

3. Where handbooks were not available in the 2004/05 study, the 'postcode sectors'[16] of organisations identified through desk research as being based on port estates were used to specify the sample. In 2009-10, DfT

[15] i.e. the SIC codes specifically defined as direct for the purpose of the 2004/05 study.

[16] Postcode sectors exclude the last two characters of the full postcode.

produced a comprehensive list of postcodes that were relevant to UK ports for the purpose of this study. The full postcodes identified by DfT were used in specifying the sample of organisations based on or just outside the port estate.

Again, it is difficult to quantify the impact of this change; however analysis indicates that:

a. If the postcodes used to specify the sample in 2004/05 had been used in this study, the total number of sites in the sample provided by Experian (before removal of totally unrelated organisations, de-duplication and other adjustments where they were found to be off port/not in target sector) would have totalled approximately 17,000 instead of 11,000. However, as the postcodes adopted in this study were more specific to the port estate, it is anticipated that many of the net additional businesses would have been identified as unrelated and outside the port estate. Therefore, it is unlikely that the reduction in the absolute number of businesses from which the sample was originally sourced has made any significant impact on the results

b. Conversely, because the desk research which formed the basis of the 2004/05 approach did not produce a comprehensive list of postcodes for UK ports, certain applicable postcodes were missed entirely. Those postcodes (and therefore organisations) *missed* in 2004-5 but *picked up* through the 2009-10 approach account for 15,000 employees across the study, as illustrated in the table below.

On/off port	**Module**	**Additional employees observed that would not have been picked up if the 2004/05 postcodes had been used**
On port	Direct	5,900
	Indirect	200
	Partially related	2,400
	Unrelated	5,300
Off port	Direct	900
	Total	**~15,000**

The implications for comparability are difficult to quantify precisely as some of this employment would have been picked up if up-to-date port handbooks had been available (as was the case in the 2004-05 study for a larger number of ports). Approximately half of the employment outlined in the table above came from ports for which up-to-date handbooks were available and used in 2004-05. Therefore the 2009-10 approach may have captured additional employment of around 7,500 employees in total (rather than 15,000) that would have been missed entirely in 2004/05.

6.4.3 Overall conclusions regarding the impact of methodological changes in 2009/10

The 2009/10 survey results suggest a decline in total direct employment compared to 2004/05; however the confidence intervals for the overall estimates in each respective study overlap. If the studies were directly comparable this would lead to the conclusion that the general decline in employment observed in 2009/10 compared to 2004/05 could have arisen due to sampling error and is not statistically significant.

However, when the aggregated effects of the methodological changes described in the previous section are considered (as far as it is possible to do this), the results suggest that there has been a decline in total employment in the ports industry (comparing 2009/10 to 2004/05) as:

1. The overall effect of changes to the methodology has resulted in improved coverage of port employment in 2009/10 compared to 2004/05
2. Adjusting the 2009/10 estimates in line with these methodological changes (although this cannot be done precisely) would increase the difference between the 2004/05 and 2009/10 estimates of employment
3. The decline would begin to look statistically significant.

Other analysis of data from the ports and business surveys supports this conclusion. Sixteen major ports were covered in both the 2004/05 and 2009/10 studies (not counting those which were part of ABP); nine reported a decrease in employment compared to 2004/05, six reported an increase and one reported that the number of employees was the same. Taking all of these changes into account there were 1,300 fewer employees reported for these ports alone [a 31% percentage decrease in total for these ports].

Similarly in the business survey, 24% of businesses interviewed indicated that the average number of people they employed in the last two years had decreased compared to 13% indicating that it had increased. Exact figures were not captured to quantify the net impact of these changes; however, given the evidence from the ports survey it is likely that this is indicative of a net decrease in employment in the sector.

6.4.4 Other factors to consider when interpreting the results

The reader should also be aware that the de-duplication procedure (necessary due to the use of multiple databases in this study) introduces a degree of error to overall employment estimates.

Whilst the sampling procedure in the 2009/10 study differs from that of the 2004/05 study, the de-duplication procedure adopted in this study was broadly the same. Overall employment estimates are therefore likely to be subject to a similar margin of error. Further details about the de-duplication procedure and impact on results can be found in the appendix of this report (see section 11).

7 Results of the survey of agencies

7.1.1 Introduction

The survey of agencies and labour supply companies was a supplementary qualitative study primarily conducted to verify the employment estimates relating to agency workers obtained in the ports and business surveys. However, there was also interest in establishing whether accidents to agency workers are unreported or possibly being double counted (where both the agency and the organisation employing the agency worker report the accident). This section summarises the key findings of the agency survey.

7.1.2 Number of ports using agency workers, agencies and agency workers

30 of the approximately 130 respondents from port authorities[17] interviewed in the ports survey indicated that they use agency workers. However, interviews with agencies and supplementary desk research indicate that at least 44 ports are users of agencies/labour supply companies; approximately 68% of these are major ports[18].

During the course of the fieldwork it was possible to identify the agencies and labour supply companies supplying all but eight of the 44 ports using agency workers (6 major and 2 minor ports).

The survey identified that ports used 1.3 agencies on average[19] and it is therefore estimated that there are approximately 57 agencies/labour supply companies supplying workers to port authorities in the UK comprising 12 major labour supply companies and 45 other agencies.

Most respondent agencies provided a figure for the current number of workers they were supplying to the port; however, as this figure fluctuates some preferred to give a range. Respondent agencies were supplying approximately 31-38 employees each on average. This figure can be considered indicative only as not all respondents were able or willing to provide a response. However, it suggests that there were between approximately 1,700 and 2,200 agency employees on ports at the time of the survey.

This figure broadly corresponds with the results of the ports and business surveys which indicated that there were approximately 1,800 agency employees in total working for port authorities and businesses on port at the time of the interview.

[17] More than one respondent in each individual port authority was interviewed where required to get a comprehensive understanding of port employment and accidents (e.g. where ports are split into a number of wharves).
[18] Interviews with agencies and supplementary desk research identified an additional 14 ports that were not interviewed in the ports survey which were using agency workers.
[19] This figure was calculated by taking the number of unique agencies/labour supply companies that were identified and dividing it by the number of unique ports they were supplying. This eliminated the risk of double counting agencies where they supplied more than one port.

This suggests the ports and business surveys captured agency worker numbers fully.

7.1.3 Summary of key findings from the qualitative interviews with agencies

A short qualitative interview was conducted with 45 companies that supply workers to ports. The interviews explored a range of topics including:

- What type of workers they supply to the ports
- Whether they provide training to these workers
- Whether and how they monitor working hours to ensure they are not excessive.
- Whether they report accidents occurring to agency workers themselves or whether these accidents are reported by their clients.

As the interviews were conducted on a qualitative basis with one respondent from each agency, the findings presented here should be taken as merely a broad indication of the general behaviour of agencies and labour supply companies. For core questions asked to all respondents the number of agencies providing each response is indicated. However, observations arising from the interviews where it is not possible to quantify precisely the number of all agencies interviewed that would share a particular behaviour, for example, are reported in more general terms (a few, some, most, all).

What type of workers they supply to the ports

Seven of the 45 businesses supplying workers to ports were port labour suppliers; these businesses specialise in supplying labour to ports and were usually linked to a specific port where they had regular contracts.

Of those that were general recruitment agencies (the remaining 38 businesses), the majority of workers they supplied to the port were to perform jobs relating to the loading and/or unloading of general cargo for import/export; this included stevedores for general dock work and warehouse workers, especially drivers (forklift, class 1, 2 etc). Some workers were also recruited for construction projects on the port.

For many generalist agencies, supplying workers to the port was a relatively small part of their business, and they only supplied workers to the port on an ad-hoc basis. Many generalist agencies supplied less than ten workers to ports (and in a number of cases only one or two) whereas specialist agencies/labour supply companies tended to supply more than ten (and up to as many as 130 workers).

Whether they provide training to these workers

13 of the 45 agencies interviewed (29%) offer some form of training ranging from basic health and safety to a full port induction which is usually delivered in conjunction with either the port authority or the business they are supplying on the port.

28 out of the 45 agencies interviewed (62%) stated that they do not provide any training for the workers they supply to the ports; this is for a number of reasons:

- Ports typically provided induction which would cover most or all of the elements of interest i.e. ‘health and safety’, ‘skill-related training’ and ‘port-related training’.

- Agencies rarely carry out training themselves, though they could arrange training if requested by the client. Agencies tended to see themselves as merely a resource to find the staff with existing capabilities to be able to successfully and safely perform their job roles; they considered it to be the client's responsibility to provide any job/location specific training beyond that.

- There are generally little to no educational requirements to work on a port. All that workers typically require is relevant experience, which tended to be considered as over a year doing a job similar to the one they had applied for i.e. cargo handling, general labour etc. Checks are also carried out where necessary to ensure workers have up to date licenses for those using machinery, especially drivers.

Whether and how they monitor working hours to ensure they are not excessive
All agencies interviewed had timesheet systems in place to capture the amount of time that workers spent working for their clients. Those supplying drivers to port based or port related businesses tended to have formal procedures in place for explicitly monitoring and dealing with excessive working hours.

For other roles, respondents felt that excessive working hours would be picked up (either because they would notice from looking at the timesheet information or because the timesheet system would specifically alert them to the high number of hours worked); however, as they had not typically encountered a situation where one of their workers had been deemed to be working excessive hours, they could only speculate about what action they would take where they identified such issues. Responses suggested that agencies were aware of the potential risks that workers on their books might work excessive hours; however, some respondents commented that it was difficult to apply a cap on working hours due to the fluctuations in demand for labour.

Whether they report accidents occurring to agency workers themselves or whether these accidents are reported by their clients
Agencies usually begin their accident procedures once they have been informed by either the client or the employee of the situation. These procedures then generally work in conjunction with those of the port. Respondents often explained that the accident would be logged in the accident report book by both parties and both would often carry out full investigations of the incident, sometimes in collaboration.

A minority of respondents did not know whether the agency or the client company should report accidents occurring to agency workers on port to HSE. In almost all cases these respondents said they did not know as they had never had to deal with this situation.

Labour supply companies typically indicated that they would report accidents to their employees to HSE where appropriate.

It was difficult to establish from the interviews exactly how many accidents to agency workers would be reported to HSE as some respondents were unsure exactly how this was dealt with in their organisation. All respondents indicated that the accident would be 'logged' in their records and/or that it would be reported by the agency to HSE.

However, questions were also asked in the main ports and business surveys to all of those employing agency workers to explore whether they would report accidents where appropriate to HSE only, to the agency only or to both.

The table below summarises the results for port authorities and business respondents separately:

Responses from port authority respondents	%
Report to HSE only	8%
Report to agency only	3%
Report to both the agency and to HSE	5%
Not applicable as do not employ agency workers	37%
Do not currently employ agency workers but would report to HSE	10%
Do not currently employ agency workers but would report to agency only	3%
Do not currently employ agency worker - would report to both HSE and the agency	7%
Employ agency workers but did not answer the question	25%
Reported to head office, they would then deal with it	2%

Responses from business respondents	%
HSE only	17%
Agency only	19%
Both	64%

Notes:

1. All estimates presented here are based on respondents who were able to indicate how accidents would be reported.

The results appear to indicate that there is a lack of clarity among ports and port based businesses about whether they should report accidents relating to agency workers to HSE directly or just to the agency for them to report. It is difficult to draw specific conclusions from the results as:

- In practice, the person responsible for reporting will vary. Where there are agency workers HSE would expect agreement between the parties on who is responsible for RIDDOR reporting. The legal definition of 'employer' under health and safety legislation is the person who has most control over the work and activities – this is often the company for which the agency employee has been working rather than the agency, but this is not always the case.
- Some ports using ‘agency’ workers will be using specialist labour supply companies where the working arrangements are likely to be different to those using generalist agencies
- It is possible that the person responsible for reporting accidents to HSE and the respondent to the surveys would be different.

However, taking into account the uncertainty on the part of some individuals responding to the survey, there was no clear evidence that accidents occurring to agency workers would

go unreported or that they would be reported twice (once by the agency and once by the port business).

8 Estimating port employment going forward

8.1 Introduction

Collecting data relating to employment and accident rates is a resource intensive exercise and it is not feasible for the Department for Transport to repeat the study on an annual basis. Therefore it is desirable to explore how far it is possible to produce estimates of employment rates between surveys using published statistics and other data available to the Department.

With this in mind, following the completion of this study analysis was conducted to:

1. Establish whether there is a relationship between employment and the quantity of cargo or passengers and if this can be used to estimate port related employment going forward
2. Explore whether data from the Inter-Departmental Business Register (IDBR) could be used to produce an estimate of port related employment.

This section summarises the outcomes of this analysis and outlines how employment data might be estimated between surveys.

8.2 Exploring the correlation between cargo data and employment

8.2.1 Summary of analysis conducted and aims

Linear regression was used to explore the correlation between cargo data and employment by the port authority for major and minor ports separately. The aim of the exercise was to identify whether direct employment could be estimated based on cargo statistics.

The reader should note in interpreting the results presented in this section that the immediate outcomes of the regression analysis can only be used to estimate the total employment by major and minor port authorities (rather than all businesses on port) as the business survey does not provide accurate data on employment at the level of an individual port[20]. Since on port businesses contribute roughly twice as much to total on-port direct employment as port authorities, and the relative contributions probably vary significantly from port to port, this reduces the usefulness of this modelling.

[20] The grossing up of individual responses to draw conclusions about the UK as a whole means that an individual respondent business is grossed up to represent similar businesses on ports across the UK, rather than similar businesses within the port in which they are based. This means that it is not possible to robustly quantify the number of employees on an individual port.

8.2.2 Analysis outcomes

The analysis conducted in this study indicates that there is some correlation between employment and cargo for both major and minor ports:

1. For major ports, the regression indicated that 30% of the variation in employment by the port authority could be explained by changes in cargo. However, plotting employment against cargo for the major ports showed there was wide variation from port to port and the fit of the regression line was probably heavily influenced by a few large ports. The results indicate that major ports, on average, employed approximately 131 fte employees plus another fte employee per 148,000 tonnes of cargo handled in 2009.

   This cannot be used to generate an estimate of employment for an individual port due to the significant variation in employment, port size and cargo and the fact that 70% of the variation is not explained by changes in cargo; however, it could be used to obtain an approximate estimate of the total number of ftes employed by major port authorities in a given year assuming there were no significant changes in the market compared to 2009.

   An approximate estimate of the total number of people employed by major port authorities in year X could be made using the following calculation:

$$\text{Total emps (ftes) major ports year X} = \left(\text{number of major ports}^{21}\ (67) \times 131\right) + \frac{\text{total major port cargo year X (tonnes)}}{148{,}000}$$

   (Adjusted R^2=0.3; F=12, sig=.002)[22]

2. For minor ports, a separate regression analysis indicated that 60% of the variation in employment by port authorities in minor ports could be explained by changes in cargo. However, plotting employment against cargo suggested that the fit of this model is highly influenced by one or two large ports, and this probably results in the explanatory power of the model being overstated. The results indicate that, on average, minor ports employed approximately 8 fte employees plus another fte employee per 18,000 tonnes of cargo handled in 2009.

   Again, this should not be used to estimate employment for an individual port, but it could be used to obtain an approximate estimate of the total number of ftes employed by minor port authorities in a given year assuming there were no significant changes in the market compared to 2009.

[21] Note that this figure includes ABP ports defined as major for the purpose of this study.
[22] The results of the regression analysis indicate that 30% of the variation in employment can be explained by changes in cargo (adjusted R^2=0.3) and that the observed correlation is statistically significant at the 99% confidence level (F=12, sig=0.002).

Therefore, an approximate estimate of the total number of people employed by minor port authorities in year Y could be made using the following calculation:

$$\text{Total emps (ftes) minor ports year Y} = (\text{number of minor ports (94)}^{23} \times 8) + \frac{(\text{total minor port cargo year Y (tonnes)})}{18{,}000}$$

(Adjusted R^2=0.6; F=46, sig=.000)[24]

8.2.3 Can cargo data be used to estimate total direct port employment?

The mechanisms described in the previous section can only be used to estimate the total employment by major and minor port authorities. To calculate total direct employment therefore requires an estimate to be made of the total number of fte direct employees employed by other organisations in activity sectors directly related to the port.

Analysis of the 2009/10 results indicates that the total direct employment is approximately five times the number of fte employees estimated for major ports in 2009 by the mechanism. In the absence of comprehensive estimates of employment for individual ports, it is proposed that this finding be used as a multiplier to calculate total direct employment. This, combined with the equations presented in the previous section provides a mechanism for estimating total direct employment.

To explore the suitability of the mechanism for estimating total direct employment, cargo data for 2004 were used to estimate total direct employment in 2004. The table below summarises the estimates for 2004, and compares the results with the central estimate from the 2004/05 survey. It also includes a full breakdown of the estimates for 2009 using the described approach and includes the central survey estimate for comparison.

The bottom two rows of the table compare the overall employment estimates from the survey with those obtained using the mechanism described in this section.

[23] This figure includes ABP ports defined as minor for the purpose of this study and fishing ports.

[24] The results of the regression analysis indicate that 60% of the variation in employment can be explained by changes in cargo (adjusted R^2=0.6) and that the observed correlation is statistically significant at the 99% confidence level (F=46, sig=0.000).

	2009	***2004***
Total cargo in tonnes – major ports (DfT)	493,466,439	558,183,137
Major port authorities, cargo related component (ftes)	*3,000*	*4,000*
Major port authorities, constant (ftes)	*9,000*	*9,000*
Total employees for major port authorities (ftes)	12,000	13,000
Estimated employment for minor port authorities (also based on cargo) (ftes)	*1,000*	*1,000*
Total employed by port authorities, major and minor ports, based on cargo data (rounded)	13,000	14,000
Multiplier based on analysis of 2009 and 2004 statistics	*5*	*5*
Estimated total direct employees (ftes)	**65,000**	**70,000**
Central survey estimate for total direct employment (on port and off port)	**58,000**	**73,500**

Notes:

1. Due to the amount of uncertainty associated with estimates calculated using the mechanism described in this section of the report, all figures except the tonnages of cargo handled in 2004 and 2009 have been rounded to the nearest thousand.

The mechanism described in this section should be treated with caution as:

1. It may be coincidental that estimates for 2004 and 2009 produced using the mechanism described in this section are broadly comparable to the respective survey results
2. The mechanism does not take into account the types of cargo handled. Analysis indicates that the number of employees varies according to the types of cargo; however, attempts to produce an estimate of direct employment taking different types of cargo into account produced less accurate results (likely due to the limited number of ports for which it was possible to estimate the number of people required to handle certain types of cargo).

A robust assessment of the correlation between employment and the amount of cargo handled and how the former can be estimated given the latter would require time series data for at least five years. The possibility of collecting employment data from port authorities for the years since the last survey was investigated during the course of the 2009/10 study. However, whilst almost all said such information was retained in their records, the majority said that it was not easily accessible and that a significant amount of work would be required to collate and supply the data.

8.3 Analysis of the Inter-Departmental Business Register (IDBR)

An alternative approach to estimating total direct employment is to use data from the Inter-Departmental Business Register (IDBR), a list of UK businesses maintained by the Office for National Statistics (ONS) which combines the former Central Statistical Office

(CSO) VAT based business register and the former Employment Department (ED) employment statistics system.

To explore how direct employment might be estimated from IDBR data, a request was made to ONS to provide employment and SIC data for all sites (local units) meeting one or more of the following criteria:

1. Located in one of the postcodes used to specify the sample of organisations on or just outside port estates in the 2009/10 survey; or
2. In one of the directly related activity sectors (SIC 2003 codes):
    - SIC 6110 – Water transport
    - SIC 6311 – Cargo handling
    - SIC 6322 – Other supporting water transport activities
    - SIC 6340 – Other transport activities

The table below illustrates the number of sites and number of employees of organisations in directly related sectors 'on port' (as defined by the postcodes specified to ONS) and elsewhere:

IDBR records	**On port (based on postcode)**		**Off port (based on postcode)**	
SIC2003	**Sites**	**Employees**	**Sites**	**Employees**
61101	45	3,400	605	8,200
61102	75	1,200	690	6,800
63110	55	2,400	370	6,500
63220	265	13,700	995	21,500
63400	310	4,400	4,740	58,900
Total	**750**	**25,200**	**7,405**	**102,000**
Figures rounded to nearest 5 sites and 100 employees				

It was originally intended to compare the Experian sample directly with the equivalent IDBR data with view to extrapolating the findings of the survey to draw conclusions about the proportion of organisations in particular SIC codes that were port related and based on port.

Insufficient data are available at site level to perform a robust comparison of the IDBR and data from Experian[25]; however the following analysis was conducted to enable DfT to produce indicative estimates of employment in the SIC codes specified in this study from the IDBR:

1. The business survey data was coded using SIC 2003 codes and used to estimate the number of sites and employees of organisations in the direct sectors 6110, 6311, 6322 and 6340. The results are illustrated in the table below:

[25] Matching records between databases usually uses telephone numbers in conjunction with organisation names. However, no site level telephone number was available for approximately 70% of the records supplied by ONS.

SIC 2003	Direct on port (sites)	Direct on port employees (ftes)	Direct off port sites	Direct off port employees (ftes)
6110	47	2,000	0	0
6311	62	2,000	24	300
6322	106	3,000	105	600
6340	501	10,000	1819	16,000
Total	**716**	**17,000**	**1,948**	**16,900**

2. To incorporate the 12,500 employees identified in the ports survey for the 161 ports covered in the study, IDBR records were reviewed to identify the SIC code in which port authorities were recorded. The review indicated that port authorities are covered in SIC 6322.

3. The results from analysis steps 1 and 2 were used to estimate the proportion of sites and employees captured in the IDBR that are directly related to ports in each SIC code. The analysis was performed for on port and off port organisations (as defined by the postcodes specified to ONS) separately. The results are illustrated in the table below[26].

SIC2003	% of records/employees listed on the IDBR estimated to be port related, split by on port and off port					
	On port		Off port		Overall	
	Sites	Employees	Sites	Employees	Sites	Employees
6110	39%	43%	0%	0%	3%	10%
6311	113%	83%	6%	5%	20%	26%
6322	100%	110%	11%	3%	29%	44%
6340	162%	225%	38%	27%	46%	41%

It is possible that this data could be used in conjunction with data supplied by ONS to estimate port employment in these sectors between surveys. However, in the absence of time series data relating to port related employment in each of these SIC codes, it is not possible to verify how accurate estimates produced using this approach might be.

It was also intended to conduct analysis of the number of sites and employees for organisations in particular ports related SIC 2007 codes. As a result of representations from DfT at the time of the previous port employment study in 2004/5, SIC 2007 includes a breakdown of the 'Cargo Handling' category (category 6311 under SIC 2003, category 5224 under SIC 2007) between air, sea and land modes of transport. However, a spot

[26] Note that where percentages exceed 100% (direct on port) this is because some organisations outside of the postcodes specified were found to be on the port estate.

inspection of the records supplied by ONS indicates that the categorisation of cargo handling organisations into these separate categories is not yet sufficiently accurate for the purpose of looking at marine related cargo handling in isolation. In summary, the ONS sample of 155 'cargo handling' local units categorised 57 of these as 'sea', 95 as 'air' and 3 as 'land'. From a cursory inspection of the company names and their locations, it appeared that at least 27 of the 95 businesses categorised as 'air' were probably actually involved in 'sea' cargo handling. Another 47 did indeed appear to be genuinely air-related while the remaining 21 were uncertain without further investigation. On the other hand, those categorised by ONS as 'sea' or 'land' in general appeared to be more likely to be correctly classified. The implication of this preliminary examination is that the IDBR currently over-estimates 'cargo handling –air' at the expense of 'cargo handling – sea' and 'cargo handling – land'.

8.4 Conclusions

Both of the approaches to estimating port employment described in this section are subject to limitations. Whilst both provide a means of deriving an indicative estimate of port employment, neither is sufficiently robust to entirely take the place of primary research.

The recent addition to the IDBR of SIC 2007 codes should provide a better indication in future of the number of organisations and people involved in cargo handling in UK ports and it is possible that this could be used to estimate the total number of direct employees (ftes) and accident rates (using HSE statistics). However, as described in the previous section, the SIC 2007 breakdown of cargo handling by mode of transport in the IDBR currently appears to over-estimate 'cargo handling –air' at the expense of 'cargo handling – sea' and 'cargo handling – land' - if so this will need to be addressed if the benefits of the SIC 2007 codes are to be realised.

9 Appendix A: definitions

9.1 Introduction

The definitions outlined in this section were used in the analysis phase to identify how responses should be analysed. These definitions were not supplied to respondents.

9.2 Port

The UK can claim to have at least 650 individual ports, harbours and marinas, the majority of which see no commercial activity. For the purposes of this study (and for the sake of consistency with the 2004 study) a 'port' is defined as an entity within the terms of the Maritime Statistics Directive, i.e., one which currently or has recently handled commercial cargoes. A harbour that handles fish landed from commercially fishing boats is also considered to be a 'port' regardless of whether commercial cargoes are also handled. Accordingly, this study considers there are 161 'ports' in the UK.

Within a 'port' the area of interest is the whole port complex covered by the port freight returns (MSD2, 3 and 4, or MSD5) of a particular body, either the port authority or port operator. This may include multiple separate wharves. In geographically large or diverse ports it was important to ensure that the respondent knew which area they were reporting on; whether the whole port or a subset of facilities.

Initial contact was made with port operators or authorities provided by DfT to establish the area the respondent was able to report on. Where more than one organisation had operational control of the port, the initial respondent was asked to provide contact details for the remaining organisations. Any new organisations identified were de-duplicated in the business sample to ensure they were not contacted twice. Appropriate deductions were made from the populations used in grossing up the business survey results.

9.3 Employees

All respondents were asked to give employment figures as full-time equivalents (i.e. the number of full-time workers plus the sum of the hours worked by part-time workers expressed in terms of full-time workers). For example one full-time worker and two part-time workers working exactly 50% of the hours of a full-time worker would equate to two full-time equivalent employees.

In the ports survey it was suggested that authorities and operators contact Databuild if they required any clarification about how to express the requested data as full-time equivalent employees. A definition was also provided in the questionnaire.

In the business survey definitions were provided over the phone and interviewers probed as necessary to help them convert full and part time employees to full-time equivalent employees if unsure.

9.4 Employment definitions

Given the complex and varied nature of activities going on in, and relating to, ports it is important to define as clearly and precisely as possible what the various categories of port employment are. The definitions adopted needed to be consistent with the 2004 study to ensure comparability, and arranged into data sets or "modules" so that the information can be re-assembled for different purposes – for example for measuring on port accident rates it is important to include only employment on the port estate.

The following types of port or port related employment included in the study are summarised in this section.

9.4.1 Direct employment

This is defined as employment associated with the main operation of a port and supporting activities. This includes port management and administration; port operations (e.g. cargo handling) including technical support; marine and shipping activities in port (e.g. people employed by shipping lines or operators on-shore); port regulatory and other services (e.g. customs) and other supporting port related activities. Typically the work takes place on the port estate, but not necessarily.

More details of these definitions are given below:

Port Operations [1]:	
Marine operations	Comprises activities which involve the operation or support of seafaring vessels, including dredgers and tugs. Also included are VTS[27] staff, harbourmasters, lock operations staff, berthing, mooring, bunkering and fuel supply, and surveying activities.
Cargo operations	Comprises activities involving the loading and unloading of cargo, and any associated administration. Cargo operations includes stevedores, forklift operators, cargo handlers and clerks.
Passenger operations	Comprises activities involving the transport of passengers by sea. Job roles included are information officers, baggage handlers and security staff.
Other port operations	**Port management and administration –** staff employed by the port working in management, finance, administration, HR, training etc.
	Port regulatory and other services - Police, port security (not passenger), customs, immigration, health and safety, veterinary, environmental protection, waste disposal waste oil reception etc.
	Professional engineering and maintenance – marine

[27] Vessel Tracking System (i.e. traffic monitoring & control)

	engineers, technical support and maintenance, underwater maintenance and engineering, ship repair and maintenance
Other supporting port related activities [2]:	
Any other directly port related activities not covered above (i.e. which are not directly concerned with the operation of the port or its ship, cargo or passenger handling activities). Includes forwarding agents, ship brokers, importers/exporters, ship chandlers, line/ shipping agents, tank cleaning, specialist equipment hire/sales, ship classification, fishing (on port), salvage activities etc.	

Notes:

1. Note that employment within the four 'operations' categories may include both office based and non-office based jobs.
2. 'Other supporting port related activities' are considered 'non-operational', in contrast to the previous four categories
3. Seafarers who are employed at sea but work on the ship in port are *excluded* from these port employment estimates. There will be an element of "self handling" in ports by seafarers (i.e. who *load an*d unload cargo in port) but in practice it would be very difficult to estimate just how much of their time is spent on these activities on-shore and it would not be appropriate to include all seafarer time since the vast majority of it is spent at sea. To avoid possible over reporting of accidents (to seafarers) respondents were also asked to exclude marine accidents.
4. Shore-based employment by shipping companies is excluded from port employment estimates unless the company is based on a port estate, in which case its shore-based employees are included in direct employment.

9.4.2 Indirect employment

This is defined as employment associated with general goods and services i.e. non-specialist marine related goods or services purchased by companies involved in direct employment operations e.g. general supplies, catering, general maintenance.

9.4.3 Induced employment

This is defined as employment supported by spending by households of direct and indirect employees.

9.4.4 Employment in ports partially related to ports operations

Some businesses located on port do so because it is convenient for them, for example they may import materials or export goods, as with Tate & Lyle in the Port of London; or they may bring in produce by ship, an example would be a company involved in fish processing.

9.4.5 Port visitors

These are defined as visitors to the port estate as estimated by the port authority or port managers e.g. people on general business with the port authority or manager, lorry drivers coming into the port to make deliveries, etc. Visitors to the port who are entering the port because of their employment such as HGV drivers accompanying their vehicle on a RO/RO ship were classified as visitors rather than passengers.

Passenger numbers were collected separately from port visitors to:

1. Draw a distinction between the two categories of visitors
2. Feed into our analysis of the factors affecting the levels of employment in ports.

9.4.6 Employment in ports unrelated to port operational activities

These are defined as those businesses on the port estate that are completely unrelated to the activity of the port, simply renting or leasing land from the port authorities, such as retail outlets.

9.4.7 Employment modules

The employment related and visitor estimates have been made using the above employment definitions but with a further division between employment on and off port, to derive the following a modular approach. Modules can either be taken separately or combined with others to suit the specific area of interest.

The modules used in this study were as follows:

A	Port operational activities
A1	Direct employment within the port estate
A2	Direct employment outside the port estate
A3	Indirect employment within the port estate
A4	Indirect employment outside the port estate
B	Induced employment
C	Employment on the port estate partially related to port operational activities
D	Port visitors
E	Employment on the port estate unrelated to port operational activities

9.4.8 Permanent and non-permanent employees

Permanent employees are those employed on a permanent contract; non-permanent employees are those employed on a temporary basis (e.g. seasonal workers, agency workers and any other casual employees).

9.4.9 Office based and percentage of time office based

As office based employees are less likely to be at risk from port activities, accident rate statistics have also been compiled to enable a distinction to be drawn between office based and non-office based employees.

All respondents in the business survey were asked to indicate the number of accidents that had occurred to office based staff or involved office activities. The number of office based fte employees was investigated in two ways:

1. Respondents in the survey of businesses were asked how many of their employees were entirely (100%) office based
2. Respondents from the business survey were re-contacted at random to explore the approximate proportion of the time that direct employees performing different functions spend in the office. This enabled us to estimate the effective number of full time equivalent employees in the office and not in the office in the year.

9.5 Port employment job types

The following is a list of various job/ company types defined to be within direct, indirect, partially related and unrelated employment modules in the 2004 study. The same definitions were adopted in the 2009 study for consistency.

9.5.1 Direct

This is defined as employment associated with the main operation of a port and supporting activities:

Port management and administration
Cargo handling, storage, warehousing
Berthing
Mooring
Towing
Technical support and maintenance
Lock operations
Shipping operators on port[1]
Pilots
Tug operators
Lighter operators
Line/ shipping agents
Forwarding agents (for sea or mainly sea transport)
Bunkering
Ship chandlers
Ship repair and maintenance
Tank cleaning
Waste disposal waste oil reception
Port police, security
Customs and immigration
Vetinary, health and safety, environmental protection
Marine surveys
Salvage activities
Dredging
Importers/exporters
Fishing, on port
Ship brokers

Ship classification
Marine engineers
Ship surveyors
Underwater maintenance and engineering
Specialist equipment hire/sales
Fuel supply
Charterers

9.5.2 Indirect

This is defined as employment associated with the supply of general goods and services i.e. non-specialist marine related, purchased by companies involved in direct operations:

Cleaners
Catering staff
Construction/demolition
Sales of general products and services

9.5.3 Partially related

This defined as employment by businesses located on port because it is convenient for their operation e.g. they may import raw materials or export finished goods, and wish to have a manufacturing base close to the reception of raw materials or export of goods.

Manufacturing
Fish processing/sales
Port-centric logistics (where these are located on port for convenience only)

9.5.4 Unrelated

This is defined as businesses on the port estate that are completely unrelated to the activity of the port:

Marinas
Ship builders
Boatyards
Hotels
Restaurants
Taxis services
Car parking, car hire
Museums
Yacht clubs
Yacht sales
Sail makers
Sailing school
Estate agents (not port related property)
Haulage[2]
Warehousing off port
Forwarding agents (land or mainly land transport)

Notes:

1. Shipping companies based on the port, are classified as direct. If they are not based in the port then they are excluded from port employment estimates. Organisations in SIC 6110 account for 2,000 on port employees in the estimates. Employees spending any of their time off shore as part of their role were excluded from the employment estimates.
2. Haulage companies based on the port are classed as unrelated. If they are not based on the port then they are excluded from port employment estimates.

10 Appendix B: HSE accident reporting

Information on accidents is collected by the Health and Safety Executive (HSE) in the reporting system known as RIDDOR (Reporting of Injuries, Diseases and Dangerous Occurrences Regulations). All employers and the self employed and have a duty to report work certain work related accidents (defined below) as well as accidents diseases and dangerous occurrences.

Accidents are categorised into:

- Deaths
- Major injuries
- Over 3 day injuries (which are not major but which results in the injured person being away from work for more than three days).

Employers must report accidents connected with work to employees, to self-employed person working on their premises, and to members of the public who are killed or taken to hospital.

The information included on the accident record includes the following data sets of relevance to the current study:

- Name of the organisation making the return
- Address
- Post code (usually but not always present)
- Type of work done by the organisation
- Standard Industrial Classification of business
- Date the accident happened
- Where the accident happened (if not at the employers address then the address where it did happen, or a description of the public place)
- Department or where on the business premises the accident happened
- Age
- Gender
- Job title
- Standard Occupational Classification
- Status of the injured person e.g. employee, trainee self-employed, a member of the public
- Type of injury (fatal, major, over 3 day)
- Description of what happened

- Date accident report submitted

11 Appendix C: Populations and weighting

11.1 Introduction

In order to gross the data up effectively it was necessary to estimate as accurately as possible the size of the population from which the sample of respondents had been drawn.

The samples have been drawn from several different sources and in some cases there is overlap between these. Therefore a method was devised to account for this overlap.

This section outlines how populations were determined, how overlap was accounted for and the approach to weighting the data to draw conclusions about the population as a whole.

11.2 Approach

11.2.1 Estimating the population

Four data sources have been used in the 2009/10 study; these are:

- A list of UK ports provided by DfT and DEFRA
- Port handbooks
- Experian's database of UK businesses:
    a. To supplement port handbooks for port-based businesses (based on postcode data provided by DfT)
    b. For off-port businesses in direct sectors (SIC Codes 6322, 6110)
- The current BIFA (British International Freight Association) members list to provide coverage of SIC codes 6311 and 6340.

As there was some overlap between the databases, it was necessary to remove de-duplication both before (where this was possible) and following the completion of the study. The reader should be aware that the de-duplication procedure necessary due to the use of multiple databases in this study introduces a degree of error to overall employment estimates; therefore steps were also taken to assess the potential magnitude of this effect.

The following process was used to remove duplication:

1. For the Ports survey, the DfT and DEFRA list of UK ports was de-duplicated in the 2004/5 study, so an updated version of the same list was used as the basis for the 2009/10 study
2. For the business survey:

a. Duplicate entries were removed from each of the databases where they referred to a single organisation name, postcode and phone number combined[28].
b. Organisations on the BIFA and Experian databases were removed from the BIFA database[29].
c. Organisations from the port handbooks database[30] were removed from the Experian and BIFA databases.
d. Any organisations found to be out of business (post contact) or off port and in no way relevant to the port were removed from the population count.

212 duplicates were identified in total across all data sources (for both the business and ports surveys).

Analysis of the worst case scenario alternative de-duplication procedure (whereby interviewed organisations were weighted according to the largest database in which they appeared) indicates that the maximum error for the overall estimate of employment arising from the de-duplication procedure is approximately 3,000 direct employees. Whilst the sampling procedure in the 2009/10 study differs from that of the 2004/05 study, the de-duplication procedure adopted in this study was broadly the same and overall employment estimates are therefore likely to be subject to a similar margin of error.

The IDBR was used in the 2004/05 study as it had better coverage at the time of organisations in the 2003 SIC code 6322; however, the reader should note that the IDBR was not used as a database source for the 2009/10 study as:

1. The overall quality of samples drawn from the IDBR tends to be poor compared to other sources, particularly in providing telephone numbers. Analysis conducted on data supplied by ONS indicates that for the purpose of this study, approximately 30% of reporting units did not have a listed telephone number. Furthermore, from experience of using the IDBR in other studies it was known that the telephone numbers listed are often direct numbers for individuals involved in the finance/tax department. Switchboard numbers are more efficient for the purpose of data collection unless the target respondent is the person submitting returns to government on behalf of the business.
2. Experian's coverage of SIC6322 (the SIC for which the IDBR was used in 2004/5) has improved since the last study was conducted; they now have just over 1,200 organisations listed in this SIC code (almost identical to the number listed on the IDBR).

[28] This approach will be used because it accounts for businesses with the same name located at a number of sites and for businesses at different sites for which the same telephone number is provided.
[29] On the basis that the BIFA database is larger and more criteria were used to specify the Experian sample (which was based on port related SIC within a defined port postcode for which no handbook was available, where as the BIFA database was simply a member list)
[30] Research using the handbook sample was conducted first, consistent with the 2004/5 study.

11.2.2 Adjustments

The populations were adjusted where it was determined that organisations were not in the target sector for the study.

Adjustments were made to port populations as some overlap was found between the major, minor and fishing ports and there were a few instances where the port was no longer operational.

Adjustments were also made to reflect instances where:

1. Organisations were no longer trading
2. Organisations expected to be on port turned out to be off port and were not at all related to the port
3. Off port organisations expected to be in a direct or related sector turned out to be not at all related to the port.

11.2.3 Weighting

The data from each respondent was weighted to reflect the size of the population from which it was drawn. The weighting factor was calculated as follows:

$$\frac{\text{No. of contacts on that specific database adjusted to reflect not in target sector}}{\text{No. of contacts interviewed from that database}}$$

The table overleaf summarises the number of interviews conducted with organisations in each segment, population data and the weighting factor used to gross up the results to draw conclusions about the market as a whole:

Survey type	Data source	Total Number of records before de-duplication	Total population after de-duplication	% not in target sector when approached.	Total population after de-dupe and adjustment to remove not in target sector	Number interviewed	Weighting Factor	
							Fraction	Decimal
Electronic survey of ports	ABP	**21**	21	**0%**	**21**	**21**	21/21	1.0
	List of Major ports	**66**	55	**0%**	**55**	**23**	55/23	2.4
	List of Minor ports	**77**	77	**5%**	**73**	**47**	73/47	1.6
	List of Fishing ports	**22**	14	**14%**	**12**	**7**	12/7	1.7
Subtotal for electronic survey of ports:		**186**	**167**		**161**	**98**		
Telephone survey of businesses	Port handbooks	**1,736**	1,568	**28%**	**1129**	**480**	1129/480	2.4
	Experian on-port businesses not included in port handbooks (based on postcode)	**1,916**	1,884	**42%**	**1095**	**489**	1095/489	2.2
	Experian off-port businesses in SIC6322	**1,180**	1,165	**53%**	**544**	**70**	544/70	7.8
	Experian off-port businesses in SIC6110	**176**	176	**29%**	**125**	**34**	125/34	3.7
	BIFA members list (all sites)	**2,459**	2,303	**17%**	**1905**	**325**	1905/325	5.9
Subtotal for telephone survey of businesses :		**7,467**	**7,096**		**4,798**	**1,398**		

12 Appendix D: supplementary data tables

12.1 Breakdown of on port direct employment by function

Function	Permanent employees	Non-permanent employees *employed by an agency*[1]	All other non-permanent employees	Total[2]
Marine Operations				
Dredging	170	0	0	170
Harbour masters/assistants	570	5	35	610
Pilots	695	20	20	735
VTS staff	350	0	0	350
Lock Operations	215	0	5	220
Surveying	70	0	0	70
Tug Operations	530	0	10	540
Vessel mooring	395	0	35	430
Other marine operations	1,625	10	85	1,720
Marine Operations – subtotal	4,620	35	190	4,845
Cargo Operations				
Stevedores/dockers	4,140	25	150	4,315
Fork lift operators	1,685	10	30	1,725
Cargo Handlers (Other than fork lift operators)	1,265	90	40	1,395
Warehouse workers	1,200	125	20	1,345
Clerks	2,675	0	40	2,715
Other cargo operations	2,795	490	190	3,475
Cargo operations - subtotal	13,760	740	470	14,970
Passenger Operations				
Information Officers	260	0	15	275
Traffic Marshals	115	0	0	115
Baggage handlers	100	25	0	125
Security staff	595	125	35	755
Other passenger operations	1,000	10	35	1,045
Passenger operations subtotal	2,070	160	85	2,315
Other operations				
Port management and administration	3,775	60	235	4,070
Port regulatory and other services	355	55	10	420
Professional engineering and maintenance	3,345	85	30	3,460
Non- operations				
Other port related activities – non operational	6,095	415	365	6,875
TOTAL	34,020	1,550	1,385	36,955

Notes:

1. Ports were asked to supply non-permanent agency and non-permanent non-agency employees separately in the electronic questionnaire; as it was not practical to collect the full breakdown in this table via the telephone for businesses, the number of non-permanent agency employees for business respondents is estimated.
2. All employment estimates are rounded to the nearest 5 to reduce arithmetical error in calculation; however the estimates are not robust to this level of detail and should be treated with caution.
3. Totals are subject to rounding error.

12.2 Breakdown of off port direct employment by function

Function	Permanent employees	Non-permanent employees *employed by an agency*[1]	All other non-permanent employees	Total[2]
Marine Operations				
Dredging	45	0	0	45
Harbour masters/assistants	85	0	0	85
Pilots	0	0	0	0
VTS staff	5	0	0	5
Lock Operations	15	0	0	15
Surveying	235	0	10	245
Tug Operations	35	0	0	35
Vessel mooring	480	0	75	555
Other marine operations	740	0	55	795
Marine Operations – subtotal	1,640	0	140	1,780
Cargo Operations				
Stevedores/dockers	665	0	5	670
Fork lift operators	1,135	0	0	1,135
Cargo Handlers (Other than fork lift operators)	700	0	65	765
Warehouse workers	710	0	0	710
Clerks	6,230	0	85	6,315
Other cargo operations	1,340	0	15	1,355
Cargo operations - subtotal	10,780	0	170	10,950
Passenger Operations				
Information Officers	20	0	0	20
Traffic Marshals	15	0	0	15
Baggage handlers	0	0	0	0
Security staff	15	0	0	15
Other passenger operations	140	0	50	190
Passenger operations subtotal	190	0	50	240
Other operations				
Port management and administration	215	0	80	295
Port regulatory and other services	195	0	15	210
Professional engineering and maintenance	630	0	10	640
Non operations				
Other port related activities	6,615	120	260	6,995
TOTAL	20,265	120	725	21,110

Notes:

1. Ports were asked to supply non-permanent agency and non-permanent non-agency employees separately in the electronic questionnaire; as it was not practical to collect the full breakdown in this table via the telephone for businesses, the number of non-permanent agency employees for business respondents is estimated.
2. All employment estimates are rounded to the nearest 5 to reduce arithmetical error in calculation; however the estimates are not robust to this level of detail and should be treated with caution.
3. Totals are subject to rounding error.

12.3 Breakdown of all direct employment on and off port by function

Function	Permanent employees	Non-permanent employees *employed by an agency*[1]	All other non-permanent employees	Total[2]
Marine Operations				
Dredging	215	0	0	215
Harbour masters/assistants	655	5	35	695
Pilots	695	20	20	735
VTS staff	355	0	0	355
Lock Operations	230	0	5	235
Surveying	305	0	10	315
Tug Operations	565	0	10	575
Vessel mooring	875	0	110	985
Other marine operations	2,365	10	140	2,515
Marine Operations – subtotal	6,260	35	330	6,625
Cargo Operations				
Stevedores/dockers	4,805	25	155	4,985
Fork lift operators	2,820	10	30	2,860
Cargo Handlers (Other than fork lift operators)	1,965	90	105	2,160
Warehouse workers	1,910	125	20	2,055
Clerks	8,905	0	125	9,030
Other cargo operations	4,135	490	205	4,830
Cargo operations - subtotal	24,540	740	640	25,920
Passenger Operations				
Information Officers	280	0	15	295
Traffic Marshals	130	0	0	130
Baggage handlers	100	25	0	125
Security staff	610	125	35	770
Other passenger operations	1,140	10	85	1,235
Passenger operations subtotal	2,260	160	135	2,555
Other operations				
Port management and administration	3,990	60	315	4,365
Port regulatory and other services	550	55	25	630
Professional engineering and maintenance	3,975	85	40	4,100
Non operations				
Other port related activities – non operational	12,710	535	625	13,870
TOTAL	54,285	1,670	2,110	58,065

Notes:

1. Ports were asked to supply non-permanent agency and non-permanent non-agency employees separately in the electronic questionnaire; as it was not practical to collect the full breakdown in this table via the telephone for businesses, the number of non-permanent agency employees for business respondents is estimated.
2. All employment estimates are rounded to the nearest 5 to reduce arithmetical error in calculation; however the estimates are not robust to this level of detail and should be treated with caution.
3. Totals are subject to rounding error.

12.4 Business profile summary

12.4.1 Introduction

The tables in this section summarise the characteristics of port related organisations identified in this study. The data is presented in terms of the number of organisations not the number of employees. The numbers of organisations referred to are the estimated total numbers after grossing up, not numbers responding to the survey.

12.4.2 Profile by employment module

Estimated number of organisations				
On the port estate				Off the port estate
Direct	Indirect	Partially Related	Unrelated	Direct
1,180	56	160	293	2,478

12.4.3 Turnover

	Percentage of organisations in each category (%)				
	On the port estate				Off the port estate
Turnover	Direct	Indirect	Partially Related	Unrelated	Direct
Less than £100,000	5%	13%	1%	8%	4%
£100,000 to £500,000	21%	20%	12%	26%	16%
£500,000 to £2 million	22%	20%	30%	36%	25%
£2 million to £10 million	20%	0%	20%	8%	23%
£10 million to £50 million	9%	11%	17%	6%	9%
More than £50 million	2%	4%	1%	2%	2%
Don't know	12%	29%	12%	8%	15%
Refused	10%	4%	7%	8%	7%
Total	100%	100%	100%	100%	100%

12.4.4 Number of employees

Number of employees (ftes)	Percentage of organisations in each category (%)				
	On the port estate				Off the port estate
	Direct	Indirect	Partially Related	Unrelated	Direct
1-9 employees	55%	64%	43%	66%	55%
10-49 employees	32%	36%	42%	30%	37%
50+ employees	13%	0%	16%	5%	8%
Total	100%	100%	100%	100%	100%

12.4.5 Activity sector – direct businesses only

Business activity	% of organisations in each category	
	On the port estate	Off the port estate
	Direct	Direct
Marine Construction	7%	5%
Forwarding Agents	10%	58%
Importers/exporters	10%	8%
Line/shipping agents	13%	5%
Warehouse/storage/cargo handling	12%	4%
Port managers, wharf/terminal operators	22%	4%
Retail, marine related	11%	10%
Shipping companies, charterers	15%	6%
Total	**100%**	**100%**

12.4.6 Government Office Region

Region	% of organisations in each category				
	On the port estate				Off the port estate
	Direct	Indirect	Partially Related	Unrelated	Direct
North East	6%	9%	6%	7%	5%
North West	10%	4%	8%	4%	12%
Yorkshire and The Humber	10%	7%	22%	5%	7%
East Midlands	1%	0%	0%	0%	4%
West Midlands	1%	0%	0%	2%	6%
East of England	15%	4%	9%	13%	16%
London	1%	0%	3%	1%	12%
South East	21%	23%	4%	32%	19%
South West	9%	13%	10%	11%	7%
Scotland	16%	25%	34%	17%	8%
Wales	6%	16%	4%	9%	2%
Northern Ireland	4%	0%	0%	0%	1%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

12.5 Breakdown of employment and accidents by size of port

Employment	Employees (FTEs)	Fatal (all employees incl. agency)	Major (all employees incl. agency)	>3 day (all employees incl. agency)	Total (all employees incl. agency)	Incidence rate per 100 employees
Major and ABP ports	35,179	2	48	348	398	1.1
Minor ports and fishing ports	13,953	2	17	92	110	0.8
Total	49,132	4	65	440	509	1.0

12.6 Breakdown of employment by Government Office Region

Region	On port				Off port	Total
	Direct	Indirect	Partly related	Unrelated	Direct	
North East	4,200	0	300	600	700	5,800
North West	1,800	100	800	200	1,900	4,700
Yorkshire and The Humber	3,900	0	800	300	1,700	6,700
East Midlands	100	0	0	0	1,900	2,000
West Midlands	0	0	0	0	800	800
East of England	3,800	0	200	500	5,800	10,100
London	300		0	0	1,800	2,100
South East	10,100	400	200	700	4,400	15,800
South West	4,900	100	100	3,500	900	9,400
Scotland	4,500	100	2,200	300	1,000	8,100
Wales	2,500	100	300	200	200	3,300
Northern Ireland	900	0	0	0	0	900
Total	**37,000**	**700**	**5,000**	**6,500**	**21,100**	**70,000**

Notes:

1. ABP did not provide a breakdown of employment across its short sea ports (i.e. generally its smaller ports) by region; therefore employment for ABP short sea ports has been apportioned to individual ports on the basis of 2009 cargo traffic and allocated to the relevant region.
2. Totals are subject to rounding error
3. Employment allocated to regions on the basis of the location (postcode) of the business. Therefore the majority of Port of London employment actually falls within the East of England or South East regions.

13 Appendix E: Questionnaire & survey package

13.1 Ports survey

13.1.1 Telephone script for initial call to port authorities / operators

Introduction to **Gatekeeper**: "Good morning / afternoon. Could you put me through to a HR Manager please?"

If required: "My name is ***** and I'm calling on behalf of the Department for Transport"

Introduction to **Respondent**: "Good morning / afternoon. My name is ***** and I'm calling from a company called Databuild on behalf of the Department for Transport. We're currently conducting some work for DfT looking into port employment rates, and would like to speak to the organisation with operational control of the port. Would that be your organisation?"

If NO: "Would you have any contact details for the organisation which operates the port?"

If YES: "The Department for Transport is interested in speaking to organisations which operate ports to understand more about employment and accident rates. I would like to have a short conversation with you to inform policy and decision making in future. Would now be a convenient time to talk?"

[Qualitative interview script, including]:

- Confirm whether they are able to talk about the whole port or just part of it.
- Whether there have been any changes in the facilities, the main activities, the amount or type of cargo or passengers and what impact this had on employment.
- How and whether the recession has reduced the quantities of cargo or passengers in ports, how they have responded, what effect this has had on employment and what they expect to happen over the next two to three years.
- What they feel has the biggest impact on employment levels within their port
- Whether they are able to supply historical data about employment levels (last five years)

At the end of the short qualitative interview: "On the basis of the information you have just given me, we would be very interested in your responses to a short electronic questionnaire. Would this be something you could help with? Could I take your email address and I'll get the questionnaire sent out to you." If would prefer the questionnaire to be sent out in the post / faxed, capture/confirm details with the respondent.

"Many thanks for your help today; would you like to take my company's number or the Market Research Society's freephone number?"

13.1.2 Covering note for electronic ports survey sent out by post

Department for Transport Port Manpower Survey

Introduction and instructions

There is little statistical information about employment and accident rates at **UK ports**. This is needed both by the ports industry and by government to inform policy and decision making.

The Department for Transport (DfT) have commissioned Databuild to collect this information, and the study has the full support of the UK Major Ports Group, the British Ports Association and Ports Skills and Safety. The data gathered will remain confidential within government and only aggregated results will be publicly available.

This short questionnaire is designed to be completed electronically and emailed back to ***** at [email] by the [INSERT DATE] at the latest. If you do not have access to email or would prefer, you can fax the completed questionnaire to [faxno].

Every response is important to ensure the results are as accurate as possible. If you have any problems or concerns regarding the research please do not hesitate to contact Karl King, the Databuild project manager, on [phoneno] who will be happy to help you.

13.1.3 Covering Email for electronic ports questionnaire sent out by email

Dear Sir / Madam,

Earlier today I contacted you regarding the Department for Transport Ports Manpower survey. I attach the electronic questionnaire, which I hope you will be able to complete and email back to me no later than [INSERT DATE].

A full explanation, instructions and contact details are included in the attached document; however, please do not hesitate to contact me if you have any queries.

Many thanks for your help,

Best regards,

Richard

*****
Databuild Ltd
21 Graham Street
Birmingham
B1 3JR

Tel: [phoneno]
Fax: [faxno]
Web: www.data-build.co.uk

Databuild Ltd Registered at Companies House Cardiff Reg No: ******** VAT No: *********

****

This e-mail, and any attachment, is confidential. If you have received it in error, please delete it from your system, do not use or disclose the information in any way, and notify me immediately. The contents of this message may contain personal views which are not the views of the originating organisation, unless specifically stated. Please note that it cannot be guaranteed that this message or any attachment is virus free or has not been intercepted and amended.

Please don't print this e-mail unless you really need to

13.1.4 Covering Letter for faxed ports questionnaire

To: Mr Smith

From: ***

Date: [INSERT DATE]

Pages: 7

Message:

Please find attached a copy of the Department for Transport Ports Manpower Survey, which includes contact details and instructions for completion.

We would appreciate it if you could complete the questionnaire and return it by fax to *** at Databuild on [faxno] by [INSERT DATE].**

Please do not hesitate to contact me if you have any queries.

Many thanks,

*****

13.1.5 Ports Questionnaire

*NB If you have any queries when completing this questionnaire, please contact ***** at Databuild on [phoneno] or [email].*

All questions below are intended to relate to the entire port. If you are only able to answer for part of the port, please indicate which area of the port your answers relate to below:

1. Please estimate the amount of cargo handled, by type, over the last twelve months (or for any recent 12 month period e.g. 2008) [Please indicate which applies]. Include imports, exports and domestic traffic in and out of the port[31].

   Which twelve month period is this data for? (Please indicate using **Yes** for most appropriate)

Calendar year 2008	
Financial year 2008 to 2009	
Other (please specify below)	

	Category	Total number of units	Gross weight (tonnes) [1]
A	Containers		
B	Roll-on Roll-off (self propelled)		
	Of which:		
C	passenger cars, motorcycles, passenger buses		
D	import/export of motor vehicles		
E	Roll-on Roll-off (non-self propelled)		
F	Liquid bulk		
G	Dry bulk		
H	Forest products		
I	Iron and Steel		
J	Other general cargo		

Notes

1. Excluding tare weight of containers and Ro-Ro units
B. Road goods vehicles, import/export of motor vehicles
E. Unaccompanied trailers and semi-trailers etc
F. Liquified gas, crude oil, oil products, other liquid bulk
G. Ores, coal, agricultural products e.g. grain, Soya etc. and other dry bulk

[31] This question will not be included for major ports as these data have already been supplied to DfT.

2. Please estimate the number of passengers and other visitors to the port estate (this site) that you are responsible for, for any recent 12 month period e.g. 2008. Examples of *visitors* include hauliers undertaking work on the port estate.

   All individuals arriving or leaving the port by sea should be counted as passengers.

	Number
Passengers (travelling inwards and outwards)	
Other visitors to the port estate	

3. Please estimate the current number of full-time equivalent employees in your company/authority at this site by **occupation. Please include all employees and indicate** whether employees are **permanent** or **non-permanent (i.e. temporary/seasonal/ casual).** For non-permanent employees please indicate the number employed from employment agencies.

   Full Time Equivalent employees (FTEs) definition:
   An employee is said to be a full time equivalent if they work a full working week (say around 40 hours per week) AND work all year round. For example, two employees working approximately 20 hours per week all year round would be the same as one full time equivalent employee. Similarly two employees working approximately 40 hours per week but only working for six months of the year would be the same as one full time equivalent employee.

	Occupation	**NUMBER OF FULL TIME EQUIVALENT EMPLOYEES**		
		Permanent employees	**Non-permanent employees *employed by an agency***	**All other non-permanent employees**
a	Managerial and professional			
b	Administration/ secretarial			
c	Skilled trade			
d	Personal service, sales and customer services etc			
e	Process plant and machinery operations			
f	Other (please specify below)			

Approximately what percentage of all of your employees are entirely office based?	%

4. Please indicate the current number of **full-time equivalent** employees in your company/authorty at this site by **function** and whether employees are **permanent** or **non-permanent (i.e. temporary/seasonal/ casual).** For non-permanent employees please indicate the number employed from employment agencies.[32]

		FUNCTION	NUMBER OF FULL TIME EQUIVALENT EMPLOYEES		
			Permanent employees	Non-permanent employees *employed by an agency*	All other non-permanent employees
A		**Marine operations**			
	1	Dredging			
	2	Harbourmasters/assistants			
	3	Pilots			
	4	VTS staff			
	5	Lock operations			
	6	Surveying			
	7	Tug operations			
	8	Vessel mooring			
	9	Other marine operations			
B		**Cargo operations**			
	1	Stevedores/dockers			
	2	Fork lift operators			
	3	Cargo Handlers (Other than fork lift operators)			
	4	Warehouse workers			
	5	Clerks			
	6	Other cargo operations			
C		**Passenger operations**			
	1	Information officers			
	2	Traffic marshals			
	3	Baggage handlers			
	4	Security staff			
	5	Other passenger operations			
D		**Port management and admin**			
E		**Port regulatory and other services**			
F		**Professional engineering and maintenance**			
G		**Other port related activities (please specify)**			

Please turn over for supplementary notes relating to the categories of employment outlined in the table above

[32] If there appear to be inconsistencies in the port respondent's answers, then they will be re-contacted to clarify.

Notes

a. Waterside activities connected to cargo and passenger operations such as Harbourmasters, pilots, VTS staff, lock operations, vessel mooring, dredging, tug operations, surveying etc.
b. Land side activities concerned with loading or discharging vessels, moving, storing or handling on harbour land of goods passing through ports e.g. stevedores, clerks etc.
c. Land side operations concerned with the embarkation or disembarkation and the movement of passengers through ports e.g. traffic marshals, baggage handlers, search/security staff, information officers, etc.
d. Staff employed by the port working in finance, administration, HR, training etc.
e. Police, port security (not passenger), customs, immigration, health and safety, vetinary, environmental protection, waste disposal etc.
f. Other employment not covered elsewhere concerned with the physical operation of the port.
g. All other supporting port related activities. Includes forwarding agents, ship brokers, importers/exporters, ship chandlers, line/ shipping agents, tank cleaning, specialist equipment hire/sales, ship classification, fishing (on port), salvage activities etc.

5. If some employees are from agencies, please provide contact details for the main agencies that you use along with an indication of the job functions they perform (using the table on the previous page for guidance).

Agency name and telephone number	Job function

6. Please give the number of accidents **(excluding marine accidents)** occurring at this site, which are reportable to HSE[1] for any recent twelve month period. Please indicate whether these accidents were accidents to employees, visitors or passengers.

	Number of accidents to employees	**Number of accidents to agency workers**	**Number of accidents to visitors**	**Number of accidents to passengers**
Fatal				
Major				
Over three day injury				

Notes

1 Reports to HSE under the RIDDOR accident reporting system. The definitions of injuries are:

- **Major injury** – examples include fractures, amputations, dislocations and any other injuries leading to resuscitation or twenty four hour admittance to hospital.
- **Over 3 day injury** – injuries other than major injuries that lead workers to be absent from work or unable to do their usual job for over 3 days.

7. Do you report accidents involving agency staff to the agency or directly to the Health and Safety Executive?

8. What is the annual turnover of your organisation in the UK for port related activities? Please indicate in the box below in UK sterling.

£

9. If you would prefer not to give a more precise figure can you please indicate which of the following bands your organisation's turnover falls into?

	Please indicate using Yes for the most appropriate band
Less than £100,000	
£100,000 to £499,999	
£500,000 to £1,999,999	
£2million to £9,999,999	
£10million to £49,999,999	
More than £50million	

10. Are there any other organisations to which you provide similar data to that requested in this questionnaire (e.g. trade associations)? If so, please give details in the box below including the name of the organisation to which you provide data and what data you supply:

11. Are you a member of Ports Skills and Safety (PSS)?

Yes	
No	

12. The DfT may wish to conduct follow-up studies in future years to continue to assess employment and accident rates. Would you be willing to participate in this follow-up research?

    If so, please provide contact details in the boxes provided below and confirm whether you are happy for these contact details and the information supplied within this questionnaire to be shared with the DfT:

Name	
Job title	
Organisation	
Telephone number	
Email address	
Are you happy for your contact details to be shared with DfT	Yes/No

13. The DfT would like to conduct detailed geographical analysis of the responses to this survey using postcode data.

    As it may be possible for DfT to identify your organisation and responses using your postcode in combination with other data we require your consent to share your postcode with DfT.

    Please provide your full postcode in the space provided below and indicate whether you consent to us sharing your full postcode with DfT:

Full postcode	
Are you happy for us to share this with DfT	Yes/No

Thank you for completing the questionnaire. Please return your completed form to [email] or fax on [faxno]. If you have any further queries please contact Richard on [phoneno].

13.2 Business Questionnaire[33]

Full Time Equivalent employees (FTEs) definition: An employee is said to be a full time equivalent if they work a full working week (say around 40 hours) AND work all year round. Two employees working approximately 20 hours per week all year round would be the same as one full time equivalent employee. Similarly two employees working approximately 40 hours per week but only working for six months of the year would be the same as one full time equivalent employee.[34]

1: QUES

Questionnaire information
Project name: DfT Ports 2009 1
Written by: Karl King, Richard Carter, Charles Michaelis 2
Questionnaire status: Final 3
Approved by: Jeremy Grove 4
Date of approval: 5

13: INTRO

Hello, my name is $I. I'm calling from Databuild. We are an independent research company and we're doing some work on behalf of The Department for Transport to gather data about employment in ports and port related businesses the UK. The results of the research will be used by government to inform policy and decision making. I would like to have a five minute chat with you, is now a convenient time to talk?

Calls may be recorded for training purposes.

IF asked: respondents are chosen at random from a commercial database or port handbook.

Continue	01	
Busy signal	BS	=> /END
Definite appointment	AP	=> /CB
General appointment	GP	=> /CB
Left message	LM	=> /CB
No answer	NA	=> /END
General call back	LT	=> /END
Refused personally	RF	=> /END
Not allowed to speak to respondent	GK	=> /END
Number unobtainable	NU	=> /END
Quota full	QF	=> /END
No longer in business	DD	=> /END
Call back after the end of field work period	VA	=> /END
Duplicate	DU	=> /END
Not in the UK	UK	=> /END
Uncontactable (no answer on more than 10 attempts)	UC	=> /END

---

[33] Throughout this questionnaire, where we are requesting information about the number of employees, the researcher will probe where necessary to determine the number of full-time equivalent employees.

[34] This definition will be available to researchers throughout the interview if clarification is required.

14: REC

We would like to be able to share your views with the Department for Transport in an attributable form, however, if you are uncomfortable with this, we can keep them confidential. Which would you prefer?
Attributable 1
Confidential 2

15: IDEN

If not the best person ask who is and whether they are available, if possible make an appointment.
Are you a senior manager who's involved with or knowledgeable about Human Resources and Health and Safety within the organisation?
Yes..... 1
No, who is? ..... 2 O => INTRO

16: CODE1

Original postcode from database

=> +1
si 1>0

17: CODE2

Postcode from database. If incorrect overwrite the current postcode. We are interested in their postcode purely for profiling purposes.
Can I check your postcode, please? Is it <CODE1>
Yes..... 1
No..... 2

18: CODE3

If incorrect overwrite the current postcode
Please enter new post code

=> PORT1
si CODE2=1

19: PORT1

We are interested in this particular site.
Is your business located within a port estate or in premises on land leased from a port authority?
Yes..... 1
No..... 2 => ACT

20: PORT2

Which port is your business located on?

21: ACT

Record verbatim and classify

What does your business do?

Agriculture, hunting and forestry 01
Fishing..... 02
Mining and quarrying 03
Manufacturing..... 04
Electricity, Gas and Water supply..... 05
Construction 06
Retail trade 07
Wholesale Trade and Commission Trade 08
Motor vehicles and Motorcycles: retail of automotive fuel 09
Hotels and restaurants 10
Land Transport, transport via Pipelines 11
Water transport..... 12
Air transport 13
Storage and Supporting Transport Activities, Travel Agencies 14
Post, storage and communication 15
Financial services (e.g. financial intermediaries, brokerage).. 16
Real estate, renting and business activities (i.e. consultants) 17
Legal services 18
Education..... 19
Health and social work 20
Other services..... 21

22: PORTS

Probe response here.

We got your name from a port handbook / commercial database of businesses located near to a port. Is any part of your business activity involved with the port? For example, loading and unloading cargo, supplying other businesses on the port or regulating the working of the port?

Yes..... 1
No..... 2

23: EMP

Ask all [Seafarers working at sea SHOULD NOT BE INCLUDED]

How many permanent staff do you currently employ at this site? Note: We want the total number of full and part time. Limited companies with one employee count as zeros.

Number 1
Uncertain ..... 2 => SIZE

24: EMPS

Insert number

$E 0
1000000000000

25: SIZE

Well, can you please say instead which of these size bands the business falls into at this site? Only include permanent staff.

=> TEMP

si EMP = 1

None 1
Micros (1-9 employees) 2
Small (10-49 employees) 3
Medium and large (50 + employees) 4
Unclassified 5

---

25 a

Have there been any changes to the average number of permanent staff you employ in the last two years (i.e. not including seasonal variation)?

Yes – increase number employed – why?

No change

Yes – decrease in number employed why?

25b

Do you expect the average number of permanent staff you employ to increase, decrease or stay roughly the same over the next two years?

Increase – by how many employees (ftes) and why?

Stay the same – why?

Decrease – by how many employees (ftes) and why?

26: TEMP

Enter 999 for don't know.

Do you employ any non-permanent staff at this site?

Yes..... 1
No..... 2 => PROP
Don't Know..... 3 => PROP

27: TEMP1

Enter 999 for don't know. [Seafarers working at sea SHOULD NOT BE INCLUDED]

How many non-permanent staff do you currently employ at this site? We're interested in the number of full time equivalents.

$E 0 1000000000

27a: AGENC

Enter 999 for don't know. [Seafarers working at sea SHOULD NOT BE INCLUDED]

How many non-permanent **agency** staff do you currently employ at this site? We're interested in the number of full time equivalents.

$E 0 1000000000

28: EX

Enter 999 for don't know. We want numbers in terms of full time equivalents. [Seafarers working at sea SHOULD NOT BE INCLUDED]

How many non-permanent employees do **you** employ during your busiest period of the year? We are interested in full time equivalents.

$E

28a: MAXAG

Enter 999 for don't know. [Seafarers working at sea SHOULD NOT BE INCLUDED]

How many non-permanent **agency** staff do you employ during your busiest period of the year? We're interested in the number of full time equivalents.

$E 0 1000000000

29: MINTE

Enter 999 for don't know. We want numbers in terms of full time equivalents. [Seafarers working at sea SHOULD NOT BE INCLUDED]

How many non-permanent employees do **you** employ during your quietest (least busy) period of the year? We are interested in full time equivalents.

$E

29a: MINAG

Enter 999 for don't know. [Seafarers working at sea SHOULD NOT BE INCLUDED]

How many non-permanent **agency** staff do you employ during your quietest (least busy) period of the year? We're interested in the number of full time equivalents.

$E 0 1000000000

---

29 a

Have there been any changes to the average number of non-permanent staff **you** employ in the last two years (i.e. not including seasonal variation)?

Yes – increase number employed – why?

No change

Yes – decrease in number employed why?

29b

Do you expect the average number of non-permanent staff **you** employ to increase, decrease or stay roughly the same over the next two years?

Increase – by how many employees (ftes) and why?

Stay the same – why?

Decrease – by how many employees (ftes) and why?

29 a

Have there been any changes to the average number of non-permanent **agency** staff you employ in the last two years (i.e. not including seasonal variation)?

Yes – increase number employed – why?

No change

Yes – decrease in number employed why?

29b

Do you expect the average number of non-permanent **agency** staff you employ to increase, decrease or stay roughly the same over the next two years?

Increase – by how many employees (ftes) and why?

Stay the same – why?

Decrease – by how many employees (ftes) and why?

30: PROP

What proportion of your turnover results from port related activities or supplying and trading with other businesses on the port?

=> FURTH

si PORTS=2

Proportion 1
Don't Know..... 2 => PROP2

31: PROP1

Insert Percentage

$E

32: PROP2

Can you tell me roughly which of the following bands the proportion of your turnover that results from port related activities or supplying and trading with other businesses on the port?

=> DAYS
si PROP=1

Less than 25% 1
Between 26% and 50% 2
Between 51% and 75% 3
Between 76% and 100% 4
Don't Know 5

---

32 a

Has this proportion changed in the last five years?

Yes, it has declined – what % was generated from port related activities at its peak in the last five years?

No, it has stayed about the same

Yes, it has increased – what % was generated from port related activities at its lowest point in the last five years?

32 b

If it has changed; why has it changed? (Capture verbatim)

33: DAYS

Do your staff spend time working on the port estate?

=> MPP
si PORT1=1

Yes 1
No 2

34: DAY1

In a typical week how much time, in working days, would your staff spend working on the ports estate?

=> FURTH
si DAYS=2 AND PORTS=2

Figure 1
Uncertain 2

35: DAY2

Insert number. Enter 999 for don't know.
$E

36: DAY3

In a typical week what proportion of your business's working time is spent working on the port estate?

=> MPP
si DAY1=1

0 to 25% 1
Between 26% and 50% 2
Between 51% and 75% 3
Between 76% and 100% 4

37: MPP

Thinking now just about the site you are currently operating from, how many people do you currently employ at this site that are?
We would like full time equivalents.
[Seafarers working at sea SHOULD NOT BE INCLUDED]

	Permanent employees	**Non-permanent employees**
Managerial/Professional		
Administration/Secretarial		
Skilled Trade		
Personal Service		
Sales and customer service		
Process, Plant and Machinery Operations		
Elementary Occupations		
Other, please specify		

43: SUMUP

=> *
si MOV (SUM([MPP - OTHP]),TOTAL)

44: TOTAL

Interviewer to check
Employees is <emps> <size>
$E 0 5000000

45: OTHER

You mentioned other types of occupations, what type?

=> DREDG
si OTHP==0

Approximately what percentage of all of your employees are entirely office based?

46: DREDG

You said that in total you employ <EMPS>+<TEMP1> full time equivalent employees. I'd like to know how many of these are employed in the following areas. I have three main sections to cover, Marine Ops, Cargo Ops and Passenger Ops, and then some other supporting activities.

If so, how many permanent and how many non-permanent?

We are interested in non-permanent staff in numbers of full-time equivalents.

[Seafarers working at sea SHOULD NOT BE INCLUDED]

	Permanent employees	**Non-permanent employees**
Marine Operations		
Dredging		
Harbour masters/assistants		
Pilots		
VTS staff		
Lock Operations		
Surveying		
Tug Operations		
Vessel mooring		
Other marine operations		
Cargo Operations		
Stevedores/dockers		
Fork lift operators		
Cargo Handlers (Other than fork lift operators)		
Warehouse workers		
Clerks		
Other cargo operations		
Passenger Operations		
Information Officers		
Traffic Marshalls		
Baggage handlers		
Security staff		
Other passenger operations		
Port management and administration		
Port regulatory and other services		
Professional engineering and maintenance		
Other port related activities		

Comparing that with the numbers you provided earlier there are X [CATI system to calculate] full time equivalent employees that do not perform one of the job roles that I've mentioned. What do these employees do?

Capture job performed and number of FTEs performing each, split by permanent and non-permanent as above.

90: PASSE

Enter 999 for don't know

Approximately how many passengers do you transport at this site by sea throughout each year? (passengers are individuals other than employees that travel into or out of a port by sea)

91: BODYS

If they don't mention PSS check with them specifically. PSS is Port Skills and Safety.

Are you, or is the business, a member of any Trade or Industry bodies or professional associations?

Yes, which ones? ..... 1 O
Ports Skills and Safety PSS 2
No 3
Don't know 4

91a:

Are there any other organisations to which you provide similar data to that we have talking about?

- Yes, please specify?
- No

92: TURN

Enter 999 for don't know

What is the annual turnover of your organisation at this site?
$E 0 1000000000

93: TURN2

If don't know or won't say turnover

Well, could I ask you which of the following bands it falls into

=> ACC
si NOT TURN == 999

Less than £100,000 1
£100,000 to £500,000 2
£500,000 to £2 million 3
£2 million to £10 million 4
£10 million to £50 million 5
More than £50 million 6
Don't know 7
Refused 8

---

93 a We would like to get an understanding about how the recent recession has affected businesses.

Thinking back to this time two years ago, [in terms of sales turnover] were you expecting the business to:

Grow

Shrink

Stay the same size

93b

In the last two years has the business [in terms of sales turnover]

Grown

Shrunk

Stayed the same size

93c

Have you targeted any new sectors or types of business in the last two years? Why?

97: OFAC1

How many of your employees have been injured in accidents in the past twelve months on a port site that are reportable to the HSE, excluding marine accidents?

	Number
Fatal	
Non-fatal but major	
Over three day injury	

97a:

How many of these injuries occurred to office based staff or involved office activities?

	Number
Fatal	
Non-fatal but major	
Over three day injury	

97b:

Do you report accidents involving agency workers to the agency or to the Health and Safety Executive?

- Agency
- Health and Safety Executive
- Both
- Don't know

If they transport passengers

98a.

Have you experienced any accidents to passengers whilst under your supervision (i.e. individuals other than employees entering or leaving the port by sea)?

=> FURTH
si PORT1=2

Yes..... 1
No..... 2
Don't Know/ couldn't say..... 3

98b. ACCP1

How many accidents have occurred to passengers arriving in or leaving the port by sea whilst under your supervision, which have been reportable to HSE, excluding marine accidents?

	Number
Fatal	
Non-fatal but major	
Over three day injury	

99:

IF LOCATED ON THE PORT

Approximately how many individuals (other than those that you employ) visit you at the port?

100: ACCPA

Have you experienced any accidents to visitors to the port whilst under your supervision (excluding passengers entering or leaving the port by sea)?

=> FURTH
si PORT1=2

Yes..... 1
No..... 2
Don't Know/ couldn't say 3

101: ACCP1

How many accidents have occurred to visitors to the port (excluding passengers) whilst under your supervision, which have been reportable to HSE, excluding marine accidents?

	Number
Fatal	
Non-fatal but major	
Over three day injury	

104: FURTH

Would you be willing to help with further research in the future?
Would you be willing for your contact details to be shared with DfT for the purpose of future research
Yes and OK to share with DfT..... 1
Yes, but do not share contact details with DfT.....
No..... 2

105:

Is it still ok to share your information with the Department for Transport in an attributable form?

Still ok

Wish to remain anonymous.

Thank you for your time

13.3 Agency interviews

13.3.1 Script for initial contact with agencies

Introduction to **Gatekeeper**: "Good morning / afternoon. Could you put me through to your HR Manager please?"

If required: "My name is ***** and I'm calling on behalf of the Department for Transport"

Introduction to **Respondent**: "Good morning / afternoon. My name is ***** and I'm calling from a company called Databuild on behalf of the Department for Transport. We're currently conducting some work for DfT looking into port employment rates, and are interested in speaking to employment agencies that are based near to ports. Would now be a convenient time to talk about this?"

If NO: "When would be a better time for me to ring back?"

If YES: [See topic guide for agency interviews]

"Many thanks for your help today; would you like to take my company's number or the Market Research Society's freephone number?"

13.3.2 Topic guide for pilot agency interviews

1. What does their business do? Who are their clients? Think about whether they supply ports/businesses based on ports or more widely.

2. Do they specialise in particular areas (e.g. types of organisation, job functions etc)? What and why?

3. Do they supply port operators/authorities with staff? What kinds of staff do they supply and when do they supply them (seasonal, ad hoc etc)? How many staff do they supply to port operators/authorities? Can they talk about this in terms of full-time equivalents? Can they provide a breakdown of this by job function? What is this job function based on? Are the staff supplied to ports mainly 'front line' staff or office-based staff? If they can't provide data in this form, what data can they provide?

4. Do they supply staff to businesses based on ports? What kinds of staff do they supply and when do they supply them (seasonal, ad hoc etc)? How many staff do they supply to businesses based on ports? Can they talk about this in terms of full-time equivalents? Can they provide a breakdown of this by job function? What is this job function based on? Can they provide a breakdown of the staff by type of organisation – how is this categorised? SIC? If they can't provide data in this form, what data can they provide?

5. We are interested to know how the process of accident reporting works for agency workers – could they tell us what would typically happen in the event that someone they had supplied to a port had an accident on the port (i.e. would they know about the accident, who would report the accident etc).

Scottish Government

Transport Publications
Scottish Transport Statistics
Main Transport Trends
Household Transport - some SHS results
Transport Across Scotland:
some SHS results for parts of Scotland
SHS Travel Diary results
Travel by Scottish Residents: some NTS results
Bus and Coach Statistics
Road Accidents Scotland
Key Road Accidents Statistics
(SHS = Scottish Household Survey; NTS = National Travel Survey)

General enquires on Scottish Transport Statistics:
Transport Statistics Branch, Scottish Executive,
Victoria Quay, Edinburgh, EH6 6QQ
Phone: +44 (0)131-244 7256
Fax: +44 (0)131-244 7281
E-mail: transtat@scotland.gsi.gov.uk
Internet: www.scotland.gov.uk/Topics/Statistics

These publications are available, payment with orders From: Scottish Executive Publication Sales, Blackwell's Bookshop, 53 South Bridge, Edinburgh EH1 1YS
Phone: +44 (0)131-622 8283 Fax: +44 (0)131-557 8149

Welsh Assembly Government - Llywodraeth Cynulliad Cymru

Transport Publications
Road Casualties: Wales
Welsh Transport Statistics

Other publications with transport topics
Digest of Welsh Local Area Statistics
Digest of Welsh Statistics
Statistics for Assembly Constituency Areas
Digest of Welsh Historical Statistics

These publications are available from:
Central Support Unit, Statistical Directorate, Welsh Assembly Government, Cathays Park, Cathays, Cardiff CF10 3NQ
Phone: +44 (0)29-2082 5054
E-mail: stats.pubs@wales.gov.uk
Internet: http://new.wales.gov.uk

Northern Ireland Transport Statistics
Available from:
Central Statistics and Research Branch
Clarence Court, 10-18 Adelaide Street, Belfast BT2 8GB
Phone: +44 (0)28 9054 0801
E-mail: csrb@drdni.gov.uk
Internet: http://www.drdni.gov.uk/index/statistics.htm

Transport Statistics Users Group

The Transport Statistics Users Group (TSUG) was set up in 1985 as a result of an initiative by the Statistics Users Council and the Chartered Institute for Transport (now known as The Institute of Logistics and Transport). From its inception it has had strong links with the government Departments responsible for transport. The aims of the group are:

- To identify problems in the collection, provision, use and understanding of transport statistics, and to discuss solutions with the responsible authorities.
- To provide a forum for the exchange of views and information between users and providers.
- To encourage the proper use of transport statistics through greater publicity.
- To facilitate a network for sharing ideas, information and expertise.

The group holds regular seminars on topical subjects connected with the provision and/or use of transport statistics. Recent seminars have included:

- Road Congestion Statistics
- GIS in Transport Planning
- Road Safety Statistics
- UK Investment in Transport Infrastructure
- Active Traffic Management
- The Role of Motorcycling in the 21st Century
- Better Publicly Available Statistics On Vehicle Characteristics
- Concessionary Fares and the new Statistics and Registration Services Act
- Measuring the Importance of Shipping to the UK Economy
- National Passenger Survey

A Scottish seminar was also held.

A newsletter is sent to all members about four times a year. Corporate membership of the Group is £50, personal membership £22.50, and student membership £10. For further details please visit www.tsug.org.uk or contact:

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The TSUG also produces a *Transport Yearbook* which contains information on sources from governmental and non-governmental organisations, including some European sources. The yearbook is supplied free to TSUG members. Non-members can purchase a copy from The Stationery Office (TSO).

Transport Statistics Publications (as at October 2010)

TSO publications (Transport Statistics Reports - priced)

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PO Box 29, Norwich NR3 1GN
Telephone orders & general enquiries: +44 (0)870 600 5522
Fax orders: +44 (0)870 600 5533
E-mail: customer.services@tso.co.uk
Textphone: +44 (0)870 240 3701

TSO Shops – London, Belfast and Edinburgh

TSO@Blackwell and other Accredited Agents

Annual Reports

Transport Statistics Great Britain: 2009 Edition
(ISBN: 978-0-11-553095-1)

Reported Road Casualties Great Britain: 2009
(ISBN: 978-0-11-553162-0)

Maritime Statistics: 2009

See also TSO's virtual bookshop at:
http://www.tsoshop.co.uk

DfT: Transport Statistics Publications (Transport Statistics Bulletins - free)

Obtainable from:
Department for Transport
2/29
Great Minster House
76 Marsham Street
London
SW1P 4DR
+44 (0)20 7944 4846

Annual Bulletins – produced by Transport Statistics

National Rail Travel Survey
National Travel Survey
Public Transport Statistics Great Britain
Reported Road Casualties Great Britain: Main Results
Road Conditions in England
Road Statistics: Traffic Speeds and Congestion
Road Freight Statistics
Sea Passenger Statistics
Transport Trends
UK Seafarer Statistics
Vehicle Excise Duty Evasion
Vehicle Licensing Statistics
Waterborne Freight in the United Kingdom

Quarterly Bulletins – produced by Transport Statistics

Quarterly Bus Statistics
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+44 (0)20 7944 3087
Road Traffic and Congestion in Great Britain
+44 (0)20 7944 3095
Road Goods Vehicles Travelling to Mainland Europe
+44 (0)20 7944 4131
Reported Road Casualties Great Britain:
Quarterly Provisional Estimates
+44 (0)20 7944 3078

See also the Transport Statistics web site at: -
http://www.dft.gov.uk/pgr/statistics

NOTE: Prior to 1997, many of the Transport Statistics Bulletins were published as HMSO publications. Enquiries about back issues, or transport publications in general, should be made to Transport Statistics, 2/29, Great Minster House, 76 Marsham Street, London SW1P 4DR. +44 (020)7944 3098