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BUREAU OF TRANSPORT AND COMMUNICATIONS ECONOMICS

IN BRIEF

Stevedoring productivity

Overall productivity at the major Australian container terminals did not change significantly in the December quarter 1997. The five-port average *crane rate* was 18.5 containers per hour, compared with 18.3 in the September quarter 1997. The five-port average *elapsed rate* was 20.5 containers per hour in the December quarter 1997, compared with 20.4 in the September quarter 1997. The five-port average *net rate* was 24.3 containers per hour in the December quarter 1997, unchanged from the previous period. **Go to.**

Waterfront reliability

Berth availability within four hours of the scheduled time declined to 84 per cent in the December quarter 1997, from 89 per cent in the September quarter 1997. Availability of pilots and tugs within one hour of the confirmed time was 100 per cent, similar to performance in the previous quarter.

The proportion of ship calls affected by other waiting time incidents remained around 40 per cent in the December quarter. At least 60 per cent of these incidents directly involved waterfront services. **Go to.**

Port Interface Cost Index

In the July to December 1997 period, port interface costs for international containers declined by almost 1 per cent for both imports and exports, compared with the January to June 1997 period. In real terms, this represents a decrease of just over 1 per cent. **Go to.**

Port performance - financial

Return on assets (EBIT as a proportion of average total assets) increased in 1996/97 for the Port of Brisbane Corporation (16 per cent) and Fremantle Port Authority (2 per cent). The return on assets decreased for the Sydney Ports Corporation (2 per cent) in 1996/97.

The *dividend payout ratio* (dividends paid out as a proportion of operating profit) fell for the Port of Brisbane Corporation (6 per cent) and rose by 8 per cent for the Sydney Ports Corporation in 1996/97.

The *debt/equity ratio* for the Port of Brisbane Corporation remained unchanged in 1996/97. The debt/equity ratio for the Sydney Ports Corporation decreased by 6 per cent in 1996/97. A decrease in total debt and an increase in total equity resulted in a 34 per cent reduction in the debt to equity ratio for Ports Corp South Australia. **Go to.**

Port performance - non-financial

Total cargo throughput at the five ports fell in the July to December 1997 period to 43.6 million tonnes, compared with 45.4 million tonnes in the January to June 1997 period.

The tonnage of *non-containerised general cargo* handled at the five ports increased by 12.6 per cent in the July to December 1997 period to 2.5 million tonnes, compared with 2.2 million tonnes in the January to June 1997 period.

Measured in teus, *container traffic* for the five ports increased by 15.6 per cent in the July to December 1997 period to 1.3 million teus, compared with 1.1 million teus in the January to June 1997 period. However, the throughput of loaded teus increased by only 14.3 per cent, with loaded imports increasing 18.8 per cent and loaded exports increasing 9.2 per cent.

Average total employment at the five mainland capital city port authorities/corporations fell by 10.6 per cent in the July to December 1997 period. This follows a 5.1 per cent fall between July–December 1996 and January–June 1997, and represents a 15.2 per cent fall in average total employment over the past year. **Go to.**

Crew to berth ratios

The *crew to berth ratio* for merchant shipping was 2.123 in the December quarter 1997 (preliminary), compared with 2.152 in the September quarter 1997, and below the initial level of 2.133 in the September quarter 1993.

The crew to berth ratio for offshore shipping was 2.334 in the December quarter (preliminary), compared with 2.366 in the September quarter. **Go to.**

Single voyage permits

This issue of *Waterline* reports for the first time data on single voyage permits. **Go to.**

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STEVEDORING PRODUCTIVITY

Table 1 presents the December quarter 1997 indicators of stevedoring productivity for the major Australian container terminals, expressed in container moves per hour. The data for Brisbane, Sydney, Melbourne and Fremantle are averages for the major terminals operated by P&O Ports and Patrick. The Adelaide data cover the SeaLand terminal.

Overall national stevedoring productivity, as measured by the five-port average, did not change significantly in the December quarter 1997:

- the five-port average *crane rate* (productivity *per crane* while the ship is worked) was 18.5 containers per hour, compared with 18.3 in the September quarter 1997;
- the five-port average *elapsed rate* (productivity *per ship* based on the time labour is aboard the ship) was 20.5 containers per hour, compared with 20.4 in the September quarter 1997; and
- the five-port average *net rate* (productivity *per ship* while the ship is worked) was 24.3 containers per hour in the December quarter 1997, unchanged from the previous period.

In Brisbane the crane rate was 16.8 containers per hour in the December quarter, an increase of 0.7 containers per hour on the previous period. The higher crane rate resulted in a 2.6 per cent increase in the net rate to 19.6 containers per hour.

In Sydney the December quarter crane rate was 18.4 containers per hour compared with 18.2 containers per hour in the September quarter. There were no significant changes in the elapsed and net rates.

In Melbourne the crane rate was 18.8 containers per hour in the December quarter, compared with 18.6 containers per hour in the previous period. This marginal increase was in contrast to decreases in the elapsed rate (19.9 containers per hour, down from 20.5 containers per hour) and the net rate (22.6 containers per hour, down from 23.5 containers per hour).

In Adelaide the crane rate was 21.4 containers per hour in the December quarter, compared with 21.1 containers per hour in the previous period. This minor increase represents a continuation in the gradual improvement in Adelaide stevedoring productivity. The slight increase in crane productivity contributed to increases in the elapsed rate (29.2 containers per hour, compared with 28.4) and the net rate (30.1 containers per hour, an increase of almost one container per hour over the previous period).

In Fremantle the crane rate was 18.9 containers per hour in the December quarter. Although this represents a change of only 0.1 containers per hour, a significant increase in average crane intensity resulted in large increases in the elapsed rate (18.9 containers per hour, up by 1.9 containers per hour) and the net rate (23.2 containers per hour, up from 20.6 containers per hour).

Teus per hour

Figures 1 to 6 and table 14 present the stevedoring productivity indicators in terms of teus per hour. These data are retained in *Waterline* for the purposes of long term historical comparison and are not directly comparable with the data in table 1 because indicators based on teus per hour may be affected by changes in the mix of 20 foot and 40 foot containers over time. Nevertheless, in the December quarter, the teu based and container based data generally reflect similar movements in productivity.

WATERFRONT RELIABILITY

The *Waterline* reliability indicators provide partial measures of the variability and predictability of waterfront performance for container traffic at major Australian ports.

Berth availability, pilotage, towage

Table 2 presents information on berth availability, pilotage and towage for a sample of ship calls in the December quarter 1997. It indicates the extent to which selected port services were available at the scheduled or confirmed time.

The sample for the December quarter covers 292 ship calls, equivalent to 30 per cent of total ship calls at the major container terminals during the period. The proportion of ship calls covered at individual ports ranges from 23 per cent at Brisbane to 42 per cent at Adelaide.

The *berth availability* indicator measures the proportion of ship arrivals where a berth is available within four hours of the scheduled berthing time. Berth availability for the sample of ships was 84 per cent in the

December quarter, down from 89 per cent in the September quarter. The major change over this period was a significant decline in berth availability at Melbourne.

Caution should be used in undertaking inter-port comparisons of berth availability as there is some variation between ports in sample sizes and ship call patterns. However, the data in table 2 suggest that berth availability at Sydney and Melbourne (around 80 per cent) was significantly lower than berth availability at the other three ports (around 90 per cent) in the December quarter.

The *pilotage* and *towage* indicators reported in *Waterline* measure the proportion of ship movements where the service is available to the ship within one hour of the confirmed ship arrival/departure time. In the December quarter, the pilotage and towage indicators were 100 per cent. This was similar to performance in the previous quarter.

Other waiting time

The 10 shipping lines that supplied information for table 2 also provided data on other ship waiting time. This category incorporates waiting time that is attributable to factors other than the unavailability of a berth, pilot or towage service at the scheduled/confirmed time. The data on other ship waiting time reported in *Waterline* exclude ship schedule adjustments (instances where the shipping line regularly holds the ship off the port or at the berth in order to maintain the fixed-day schedule).

In the December quarter 1997, 119 ship calls were affected by other waiting time incidents that had a duration of at least 1 hour. These calls comprised 41 per cent of all ship calls in the sample, similar to the overall figures in the June and September quarters. The proportion at individual ports generally ranged between 30 per cent and 40 per cent in the December quarter. However, 56 per cent of ship calls in the sample for Melbourne were affected by other waiting time.

Table 3 summarises the data on other ship waiting time incidents. The shipping lines identified a total of 159 incidents for the sample of ship calls in the December quarter. The average waiting time associated with each incident was 8 hours, up from 6 hours in the previous quarter. One-quarter of the ship calls that incurred other waiting time were affected by two or more incidents.

Some of the waiting time incidents reported in table 3 resulted from a combination of ship-related and waterfront factors. However, at least 60 per cent of the incidents (47 per cent of waiting time) in the December quarter directly involved waterfront services (mainly items 2 to 7 in table 3). Another 21 per cent of incidents (24 per cent of waiting time) directly involved ship operations (mainly early ship arrival and repairs/maintenance). Some other incidents, particularly awaiting cargo and closed port (holidays), might also be associated with specific sectors.

Improved operating practices would reduce ship waiting time at Australian ports. However, a certain level of waiting time is unavoidable due to inherent factors such as bad weather. In addition, some of the ship waiting time reported in table 3 reflects conscious decisions by the industry to avoid the high capital costs (and waterfront charges) that would be required to provide services at the preferred times for all ship calls. For example, several shipping lines commented that the unavailability of tug bookings at the preferred times for a small number of ship calls reflected a reasonable trade-off between towage charges (price) and service availability (quality).

Stevedoring

Table 4 presents the available information on three aspects of stevedoring reliability at the major container terminals — stevedoring completion, stevedoring rate and cargo receival. December quarter data are not available for Fremantle due to upgrading work on one terminal operator's information system.

Stevedoring completion provides a partial indicator of the accuracy with which stevedoring time is predicted. It is defined as the proportion of ship visits where stevedoring completion time is within one hour (plus or minus) of the time initially agreed when the overall work program for the ship is prepared. The Brisbane and Sydney data indicate that there was significant inter-port variation in stevedoring completion in the December quarter.

Stevedoring rate provides a partial indicator of the variability of stevedoring productivity at each port. It is defined as the proportion of ship visits where the average crane rate for the ship is within two containers per hour (plus or minus) of the quarterly average crane rate for the terminal. The stevedoring rate indicator ranged from 49 per cent to 60 per cent at the three ports for which data are available in the December quarter. Factors which potentially affect the stevedoring rate indicator include the mix of ships handled at

each port, typical cargo stowage patterns on the ships and operating practices at the terminals.

Cargo receival is the proportion of receivals (exports) completed by the stevedore's cut-off time. It provides a partial indicator of one factor that can affect container terminal performance. In the December quarter the cargo receival indicator ranged between 85 per cent and 97 per cent at the three ports for which data are available.

Ship arrival

Table 4 includes data for two indicators of ship arrival advice. The accuracy of this advice potentially affects the ability of waterfront operators to provide services at the times required by shipping lines. It may vary between ports for a number of reasons, such as differences in weather conditions and the order in which individual ports are served.

The first indicator of ship arrival advice is the proportion of ship arrivals within one hour (plus or minus) of the most recently advised arrival time available to the port authority/corporation *at 24 hours prior to actual arrival.* The proportion at the three ports for which data are available ranged between 53 per cent and 91 per cent in the December quarter. Updated Brisbane data will be available for the next issue of *Waterline.*

The second indicator is the proportion of ship arrivals within one hour (plus or minus) of the last scheduled arrival time *advised inside the 24 hours prior to actual arrival* . Figures of 81 per cent and 94 per cent were reported at Fremantle and Sydney respectively in the December quarter. It is expected that Adelaide data will be available for the next issue of *Waterline.*

Concluding comments

The major change in the reliability indicators in the December quarter was the decline in berth availability to 84 per cent. There was little change in the availability of pilots and tugs at the confirmed time or in the overall proportion of ship calls affected by other waiting time. The available data on stevedoring reliability and ship arrival advice suggest continued variability in performance in these areas.

PORT INTERFACE COST INDEX

The Port Interface Cost Index provides a measure of shore-based shipping costs (charges) for containers moved through the Australian mainland capital city ports. Information for the period to July–December 1997 is presented in tables 5 to 7, and figure 7.

The Port Interface Cost Index is based on an indicative approach. That is, the index is not an average of all costs, but is based on those costs typically charged by service providers. The indicative approach was adopted because of the difficulty of obtaining data on the multitude of factors affecting the prices charged by each service provider, particularly for towage and road transport charges, and customs brokers' fees.

Port and related charges

Table 5 provides the cost parameters used to determine the port and related charges in table 6. These cost parameters relate to a representative port call by a containership (Lloyd's ship classification UCC). The representative ship is selected from the ship size range that had the most port calls from UCC type ships during the particular period. The other cost parameters are then determined by taking the mean of all port calls in the range that contains the representative ship. T ypically, the ship size range of 15 001 to 20 000 GRT has had the most calls at each port.

It is important to consider the relationship between the mean number of teus exchanged per port call and the size of the representative ship. This is because most port and related charges, particularly towage and port authority tonnage charges, are dependent on the size of the ship. However, shipping economics are such that most ship operators will attempt to exchange larger amounts of cargo, per port call, the larger the ship being used to transport the cargo. As a result, the per unit charge may remain the same. It is for this reason that comparative port charge analyses that keep the cargo exchange constant while varying the ship size are misleading. A discussion of this, in relation to the Port Interface Cost Index, can be found in *Waterline* 4, pp. 9–13. That article also demonstrates that the BTCE's Port Interface Cost Index is a reasonable approximation of port interface costs for most container movements across the Australian mainland capital city ports.

Table 6 provides the port and related charges at the five mainland capital city ports for the periods January

to June 1997 and July to December 1997. Port and related charges comprise ship-based charges and cargo-based charges.

Ship-based charges

On a per teu basis, total ship-based port and related charges fell at all five ports in the July to December 1997 period, due to an increase in the mean number of teus exchanged per port call for all ports. However, only at the ports of Melbourne and Fremantle were there actually any changes in the ship-based charge rates. Based on the representative ship, these changes in port and related charges for the July to December 1997 period were:

- a 5 per cent decrease in pilotage charges and a 10 per cent reduction in towage charges in Fremantle; and
- an 11 per cent reduction in tonnage charges and a 55 per cent decrease in mooring and unmooring charges in Melbourne.

The large decrease in mooring and unmooring charges in Melbourne is due to a 13 per cent reduction in charges in addition to changes in operating procedures. For ships less than 200 m in length, a launch is no longer required to be hired for mooring and unmooring operations, resulting in a direct saving to ship operators of $1070 per visit.

On a per ship visit basis, there were no changes in total ship-based charges at the ports of Brisbane and Sydney.

In Fremantle, the reductions in pilotage and towage charges resulted in a decrease of 6.9 per cent in total ship-based charges per ship visit.

In Melbourne, the cost of berth hire is based on the elapsed berth time, which increased by 5 per cent (on average). Consequently, the net effect of an increase in the cost of berth hire and the decreases in tonnage and mooring charges was a 5 per cent decrease in total ship-based charges per ship visit.

In Adelaide, tonnage costs depend on the time the ship stays at the berth, measured as elapsed berth time. The elapsed berth time decreased by 25 per cent, on average, in the July to December 1997 period, and this resulted in a 3 per cent reduction in total ship-based charges per ship visit.

While caution should always be taken when making port comparisons, on a per teu basis, Sydney remains the lowest cost port for ship-based charges. This is significant from the cargo owners' point of view. However, Sydney maintains this position as a direct result of the substantially larger number of teus exchanged per port call. From the point of view of ship operators using ships similar to the representative ship in table 5, Fremantle remains the lowest cost port for ship-based charges on a per ship visit basis.

Cargo-based charges

There were no changes in port and related cargo-based charges at the ports of Brisbane or Sydney in the July to December 1997 period. Changes in port and related cargo-based charges at the other three ports were:

- an 8 per cent decrease in wharfage charges at Melbourne;
- an 18 per cent and a 13 per cent decrease in wharfage charges for loaded import and export containers, respective-ly, at Adelaide; and
- a 5 per cent decrease in both wharfage charges and berth charges at Fremantle.

Changes in total port and related charges

In Brisbane, on a per teu basis, total port and related charges fell 6 per cent for loaded import and loaded export containers in the July to December 1997 period, compared with the previous period. As there were no changes in any actual port and related charges at Brisbane during this period, this decrease demonstrates the impact a 16 per cent increase in the mean teu exchange can have on the per unit charge.

In Sydney, on a per teu basis, total port and related charges fell 5 per cent for loaded import and loaded export containers in the July to December 1997 period, compared with the previous period. Like Brisbane, this decrease was the direct result of an increase (15 per cent) in the mean teu exchange per port call, rather than as a result of any changes in actual charges.

In Melbourne, on a per teu basis, total port and related charges fell 9 per cent for loaded import and loaded export containers in the July to December 1997 period compared with the previous period. This decrease was the result of an increase in the mean teu exchange and a net decrease in ship based charges.

In Adelaide, on a per teu basis, total port and related charges fell 17 per cent for loaded import containers and 15 per cent for loaded export containers in the July to December 1997 period, compared with the previous period. These reductions were mainly the result of changes in wharfage charges. Since wharfage is a cargo-based charge, it is a significant component of per teu port and related charges. While the reduction in Adelaide's total port and related charges represents the largest decrease of all five ports, Adelaide remains the most expensive port for total port and related charges on a per teu basis.

In Fremantle, there have been reductions in port and related charges in the July to December 1997 period, but since the actual cost parameters used in table 5 are provisional, no comment can be made regarding the impact on total port and related charges on a per teu basis. Nevertheless, it is believed that the provisional data provide a reasonable approximation of the situation in Fremantle.

Stevedoring charges per teu

The last ACCC survey of container terminal operations provided a provisional estimate of stevedoring charges of $203 per teu in 1995. For the January to June 1997 period, the BTCE contacted a range of shipping lines and terminal operators as an interim attempt to obtain more recent estimates for container stevedoring charges. As a result, it was estimated that average revenue for container stevedoring was 7.5 per cent, or $15 per teu, less than the ACCC's provisional 1995 estimate. This led to a provisional stevedoring charge of $188 being used for the January to June 1997 Port Interface Cost Index.

The BTCE is currently working to obtain detailed data to provide a more robust estimate of stevedoring charges. In the meantime, the provisional estimate of $188 used for the January to June 1997 Port Interface Cost Index has also been used as the provisional estimate for the July to December 1997 period.

Land-based charges per teu

The average customs brokers' fees and road transport charges for the January to June 1997 and July to December 1997 Port Interface Cost Index are included in table 7. These charges are based on data provided by approximately 40 customs brokers and 50 road transport operators.

In the July to December 1997 period there was little movement in customs brokers' fees, with the only changes being an increase (2 per cent) in the fee for imports at Brisbane and a decrease (4 per cent) in the fee for exports in Fremantle.

Customs brokers' fees for import containers are significantly higher than the fees for export containers. This reflects the more complex clearance procedures for import containers.

There was also little movement in road transport charges in the July to December 1997 period, with increases at Brisbane (2 per cent) and Fremantle (1 per cent). The $1 increase at Melbourne is not regarded as significant.

One of the parameters used to estimate road transport charges is the time taken to move containers from (to) the wharf to (from) the customer's warehouse. T raffic congestion impacts on this parameter and helps explain to some extent the significant difference between road transport charges at Melbourne and Sydney compared with Brisbane, Adelaide and Fremantle.

Indices for individual ports

Table 7 indicates that port interface costs declined at all Australian mainland capital city ports between January–June 1997 and July–December 1997. The greatest reduction in port interface costs occurred at Adelaide, with a 4 per cent decrease in both the import and export indices. At Fremantle, port interface costs fell by 2 per cent for both the import and export indices. In Melbourne port interface costs fell by 1 per cent. At Brisbane and Sydney, both the import and export indices fell by less than 1 per cent.

However, the reductions in the port interface cost indices should be interpreted with great care given the provisional nature of the reported stevedoring charges. If stevedoring charges were to have increased by only 5 per cent in the July to December 1997 period, four of the five ports would have recorded an increase in port interface costs.

Even if stevedoring charges did not change during the July to December 1997 period, care should also be taken in making inter-port comparisons of port interface costs. For example, the use of a single stevedoring charge for all ports reflects the scope of the available information, which is not disaggregated on an individual port basis. In practice, container stevedoring charges often vary between ports.

National index

Figure 7 provides the national Port Interface Cost Index since it was first produced for the July to December 1992 period. The figure also shows the Port Interface Cost Index in real terms.

In overall terms, the index declined by approximately 1 per cent for both imports and exports in the July to December 1997 period. In real terms, this represents a decrease of just over 1 per cent.

Since the Port Interface Cost Index was developed, national port interface costs have fallen by approximately 12 per cent for imports and 9 per cent for exports, in real terms.

PORT PERFORMANCE - FINANCIAL

Information on the financial performance of the five mainland capital city port authorities/corporations in 1995/96 and 1996/97 is presented in table 8.

Financial data for Melbourne were not available for the 1995/96 period, as the Port of Melbourne Authority was replaced by three entities from 1 March 1996. As a consequence, the 1996/97 data in table 8 for Melbourne represent the Melbourne Port Corporation's (MPC) financial performance for the period 1 March 1996 to 30 June 1997 (16 months) as published in the MPC's 1997 Annual Report.

Earnings and assets

Earnings before interest and tax (EBIT) increased in 1996/97 for the Brisbane and Sydney port corporations (24 and 4 per cent, respectively), and for the Fremantle Port Authority (9 per cent). Given that Ports Corp South Australia's 1995/96 EBIT figure was affected by abnormal items associated with the restructuring process, no substantive comment can be made on changes in this figure in 1996/97.

Operating profit after income tax in 1996/97 increased by 33 per cent for the Port of Brisbane Corporation, and fell by 11 per cent for the Sydney Ports Corporation and 40 per cent for the Fremantle Port Authority.

Average total assets in service rose for the Brisbane (6 per cent), Sydney (7 per cent) and Fremantle (7 per cent) port authorities/corporations in 1996/97. The decline of 13 per cent for Ports Corp South Australia is largely the result of the write-down of asset values in the 1995/96 period.

Return on assets (EBIT as a proportion of total assets) increased in 1996/97 for the Port of Brisbane Corporation (16 per cent) and the Fremantle Port Authority (2 per cent). The return on assets decreased for the Sydney Ports Corporation (2 per cent) in 1996/97.

Dividends

Dividends paid in 1996/97 by the Port of Brisbane Corporation and Ports Corp South Australia increased by 26 per cent and 18 per cent respectively. The dividend paid by the Sydney Ports Corporation fell by 3 per cent in 1996/97. As in 1995/96, no dividend was paid by the Fremantle Port Authority in 1996/97.

The *dividend* payout ratio (dividends paid out as a proportion of operating profit) fell for the Port of Brisbane Corporation (6 per cent) and rose by 8 per cent for the Sydney Ports Corporation in 1996/97.

Debt and equity

Total debt in 1996/97 remained unchanged for the Port of Brisbane Corporation and increased marginally for the Sydney Ports Corporation. Ports Corp South Australia reduced its total debt level by 31 per cent in 1996/97, while the Fremantle Port Authority reduced its total debt by 19 per cent in the same period. Since 1994/95, the Adelaide and Fremantle port authorities/corporations have reduced their total debt levels by 38 per cent and 31 per cent respectively.

Total equity in 1996/97 increased for the Brisbane, Sydney, Adelaide and Fremantle port authorities/corporations. The significant rise in total equity for the Fremantle Port Authority reflects the 1996 agreement between the Authority and the Western Australian T reasury, where the latter took over

direct responsibility for payments relating to the Authority's superannuation pension liability for past employees. This transfer of responsibilities was finalised on 30 June 1997, when the WA Treasury took over the balance of the liability (approximately $25.9 million).

The *debt/equity* ratio for the Port of Brisbane Corporation remained unchanged in 1996/97. The debt/equity ratio for the Sydney Ports Corporation decreased by 6 per cent in 1996/97. A decrease in total debt and an increase in total equity resulted in a 34 per cent reduction in the debt to equity ratio for Ports Corp South Australia.

PORT PERFORMANCE - NON-FINANCIAL

Information on aspects of non-financial performance for the five mainland capital city ports in 1997 is presented in table 9.

Cargo throughput

Total cargo throughput at the five ports fell in the July to December 1997 period to 43.6 million tonnes, compared with 45.4 million tonnes in the January to June 1997 period. There were increases in throughput at Sydney (8.7 per cent) and Melbourne (2.7 per cent). Decreases at Brisbane (9.4 per cent), Adelaide (23.4 per cent) and Fremantle (10.3 per cent) resulted in an overall decline of 4 per cent in total throughput for the five ports.

The total cargo throughput for the five ports in the July to December 1997 period represents a 2.4 per cent increase compared with the same period in 1996.

The tonnage of *non-containerised general cargo* handled at the five ports increased by 12.6 per cent in the July to December 1997 period to 2.5 million tonnes, compared with 2.2 million tonnes in the January to June 1997 period. All five ports made a positive contribution to this increase, with Brisbane recording the largest increase (31 per cent) and Sydney the smallest increase (3.1 per cent).

The non-containerised general cargo throughput for the five ports in the July to December 1997 period represents a 9.1 per cent increase compared with the same period in 1996.

Measured in teus, *container traffic* for the five ports increased by 15.6 per cent in the July to December 1997 period to 1.3 million teus, compared with 1.1 million teus in January to June 1997. However, the throughput of loaded teus increased by only 14.3 per cent, with loaded import containers increasing 18.8 per cent and loaded export containers increasing 9.2 per cent.

The throughput of loaded containers increased at all five ports in the July to December 1997 period. For loaded import containers, these increases ranged from 26 per cent in Brisbane to 16 per cent in Melbourne. For loaded export containers, the largest increase was at Sydney (15.4 per cent), while the smallest increase was at Melbourne (6.3 per cent).

Compared with the July to December 1996 period, total container traffic increased by 11.5 per cent for the five ports in the July to December 1997 period, with loaded container throughput increasing by 11.3 per cent.

Employment

Table 9 indicates that *average total employment* at the five mainland capital city port authorities/corporations fell by 10.6 per cent in the July to December 1997 period. This follows a 5.1 per cent fall between July–December 1996 and January–June 1997, and represents a 15.2 per cent fall in average total employment over the past year.

In the July to December 1997 period, average total employment fell for all five port authorities/ corporations. The largest reduction in employment numbers occurred in Ports Corp South Australia (16.7 per cent), the Port of Brisbane Corporation (15.5 per cent) and the Sydney Ports Corporation (11.8 per cent).

Ship turnaround time

In the July to December 1997 period, the median turnaround time for ships calling at the mainland capital city container terminals increased by approximately 5 per cent at Brisbane, Sydney, and Melbourne, and increased by 6.5 per cent at Adelaide, compared with January to June 1997. Figures were unavailable for Fremantle at the time of printing.

The 95th percentile figure indicates the longest turnaround time for all but the longest 5 per cent of port calls. Compared with the January to June 1997 period, the 95th percentile ship turnaround time fell marginally at Brisbane and fell by 2.5 per cent at Sydney. However, the 95th percentile ship turnaround time increased by 6.1 per cent at Melbourne and 30.7 per cent at Adelaide. Caution should be taken in interpreting the result for Adelaide, as the small number of ships visiting that port can lead to large variations from one period to the next. For example, the July to December 1997 95th percentile ship turnaround time at Adelaide is similar to that experienced for the same period in 1996.

CREW TO BERTH RATIOS

The BTCE monitors crew to berth ratios for Australian merchant and offshore shipping on a quarterly basis. The crew to berth ratio is defined as the number of seafarer days paid over a period of time, divided by the number of berth days the ship(s) operated. Berth days operated is defined as the sum, over the period, of the number of people required each day by the relevant statutory authority and the ship operator to carry out the work of the ship(s) in a safe and efficient manner.

Merchant shipping

Figure 8 presents information on the crew to berth ratio, and its components, for Australian merchant shipping. As the BTCE is still in the process of auditing the data, the December quarter 1997 merchant shipping data in this issue of *Waterline* are classified as preliminary.

The *crew to berth ratio* for merchant shipping was 2.123 in the December quarter, compared with 2.152 in the September quarter and below the initial level of 2.133 in the September quarter 1993.

Table 10 shows the individual components of the crew to berth ratio for merchant shipping, by crew classification, for the December quarter. *Ship time* is the largest component of the crew to berth ratio for merchant shipping, and reflects days paid for ship duty (which may include travelling time and days signing on and off). The ship time ratio was 1.028 in the December quarter, compared with 1.035 in the previous quarter.

Accrued leave gives effect to leave with pay for weekends and public holidays worked, annual leave with pay of five weeks per annum, sick leave, compassionate leave and leave in lieu of a 35 hour week. The accrued leave ratio was 0.962 in the December quarter, compared with 0.967 in the September quarter.

Other changes in the components of the merchant shipping crew to berth ratio were:

- *Compensation leave* fell to 0.062 in the December quarter after a rise in the previous quarter to 0.066;
- *Study leave* fell to 0.027 in the December quarter, down from 0.041 in the previous quarter; and
- *Training and other paid leave* was 0.009 in the December quarter, compared with 0.008 in the September quarter.

The *long service leave ratio* for merchant shipping in the December quarter was unchanged at 0.035.

Offshore shipping

Figure 9 presents information on the crew to berth ratio, and its components, for Australian offshore shipping. As the BTCE is still in the process of auditing the data, the December quarter 1997 offshore shipping data in this issue of *Waterline* are classified as preliminary.

The crew to berth ratio for offshore shipping was 2.334 in the December quarter, compared with 2.366 in the September quarter. The December quarter crew to berth ratio is the lowest since the December quarter 1995 (2.329), but remains above the initial March quarter 1995 level of 2.327.

Table 11 shows the individual components of the crew to berth ratio for offshore shipping, by crew classification, for the December quarter. Accrued leave is the largest component of the crew to berth ratio for offshore shipping, and comprises paid leave to compensate for work on public holidays, intervals of leave associated with the two crew duty system, annual leave and time spent travelling in off duty time. The accrued leave ratio for the December quarter was 1.151, compared with 1.153 in the September quarter.

Ship time also represents a significant part of the offshore crew to berth ratio, and reflects days paid for ship duty (which may include travelling time and days signing on and off). The ship time ratio for the December quarter was 1.016, compared with 1.010 in the previous quarter.

All other components of the offshore crew to berth ratio fell in the December quarter. In particular, the *compensation leave* ratio fell to below the initial March quarter 1995 level (0.097, compared with 0.100).

SINGLE VOYAGE PERMITS

The *Navigation Act 1912* provides for licensed vessels to carry passengers and cargo in the coasting trade. The Act does not restrict the class of vessels that may obtain a Coasting Trade Licence. Any ship regardless of registry can obtain a licence provided the crew are paid Australian wages, the ship is not in receipt of foreign government subsidies, and the ship has not received such a subsidy in the previous twelve months.

Ships that obtain a licence must also conform to the requirements of the Navigation Act including specified safety, manning, crew qualifications and rehabilitation and compensation provisions. Where suitable licensed vessels are not available, the Act also provides for the issue of single or continuing voyage permits to unlicensed vessels, where this is considered to be in the public interest.

The application fee for a passenger single voyage permit is $22 and for a cargo single voyage permit (SVP) $200. The application fee for a continuing voyage permit (CVP) is $400.

Table 12 provides information on the number of SVPs used and the cargo carried from 1990/91 to 1996/97. The number of SVPs used has increased by 300 per cent over the past 7 years.

Details of the single voyage permits (SVPs) for cargo issued during the period 1 October to 31 December 1997 are available on the Internet site of the Department of Workplace Relations and Small Business at http://www.dir.gov.au/. Supplementary information will be added to the Internet site shortly, including a summary table showing the number of SVPs issued by cargo type (see table 13).

Table 13 shows a continuation of the upward trend in the number of SVPs being used to transport domestic cargo around the coast. The data for the corresponding quarter in 1996 were 146 SVPs used for the carriage of 1.1 million tonnes of cargo. (Table 12 provides information on the number of SVPs used while table 13 shows the number of SVPs issued. Although the two tables are not strictly comparable, most SVPs issued are used and therefore the differences in the data are likely to be minor and not significant.)

Containerised cargo permits continue to be the major component of SVPs issued. It was in this category that the most significant increase occurred.

The increasing number of permits for the coastal trade reflects an increase in shippers' requirements that cannot be met by local ship operators.

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FIGURES

FIGURE 1 FIVE MAJOR PORTS STEVEDORING PERFORMANCE—TEUS PER HOUR

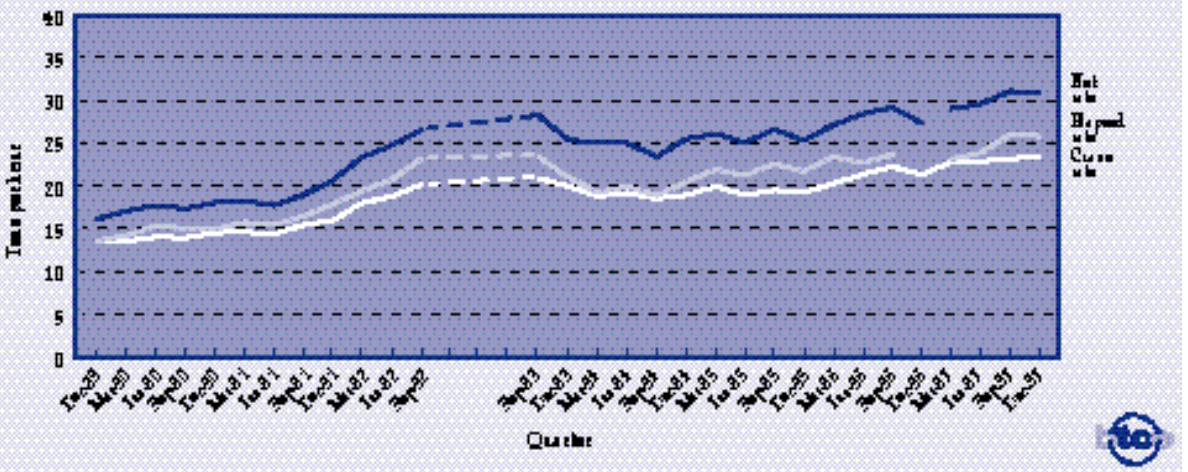
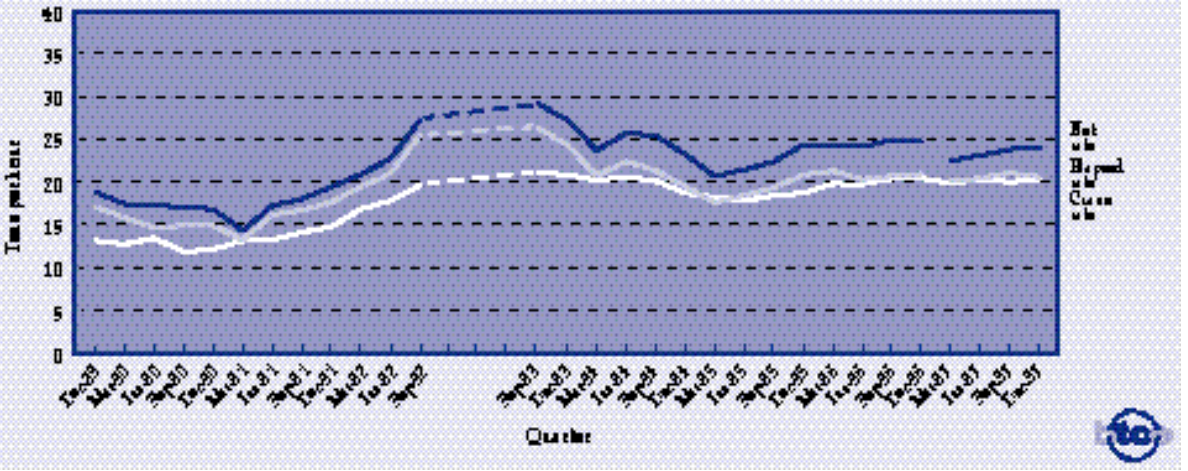


FIGURE 2 BRISBANE CONTAINER TERMINALS PERFORMANCE—TEUS PER HOUR



Notes *Elapsed rates and net rates from the March quarter 1997 are not directly comparable with earlier figures (except at Adelaide) due to changes in a terminal operator's information systems. Award shift breaks are included in the measure of time used to calculate net rates and crane rates to the end of the September quarter 1992, and are excluded from the measure of time in later quarters. Data are unavailable for the December quarter 1992 to the June quarter 1993.*

Sources *WIRA, Patrick, P&O Ports and SeaLand.*

FIGURES

FIGURE 3 SYDNEY CONTAINER TERMINALS PERFORMANCE—TEUS PER HOUR

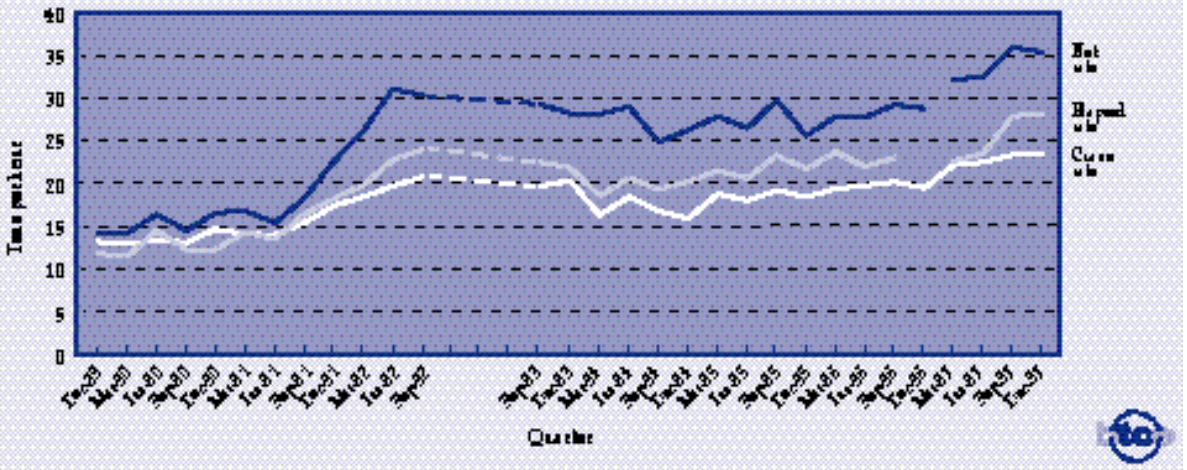
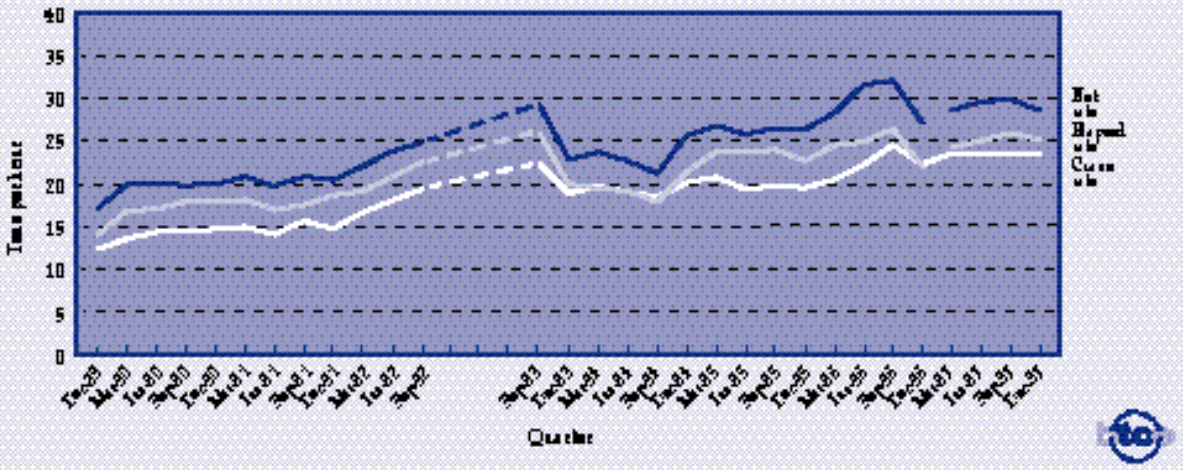


FIGURE 4 MELBOURNE CONTAINER TERMINALS PERFORMANCE—TEUS PER HOUR



Notes *Elapsed rates and net rates from the March quarter 1997 are not directly comparable with earlier figures (except at Adelaide) due to changes in a terminal operator's information systems. Award shift breaks are included in the measure of time used to calculate net rates and crane rates to the end of the September quarter 1992, and are excluded from the measure of time in later quarters. Data are unavailable for the December quarter 1992 to the June quarter 1993.*

Sources *WIRA, Patrick, P&O Ports and SeaLand.*

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FIGURES

FIGURE 5 ADELAIDE CONTAINER TERMINAL PERFORMANCE—TEUS PER HOUR

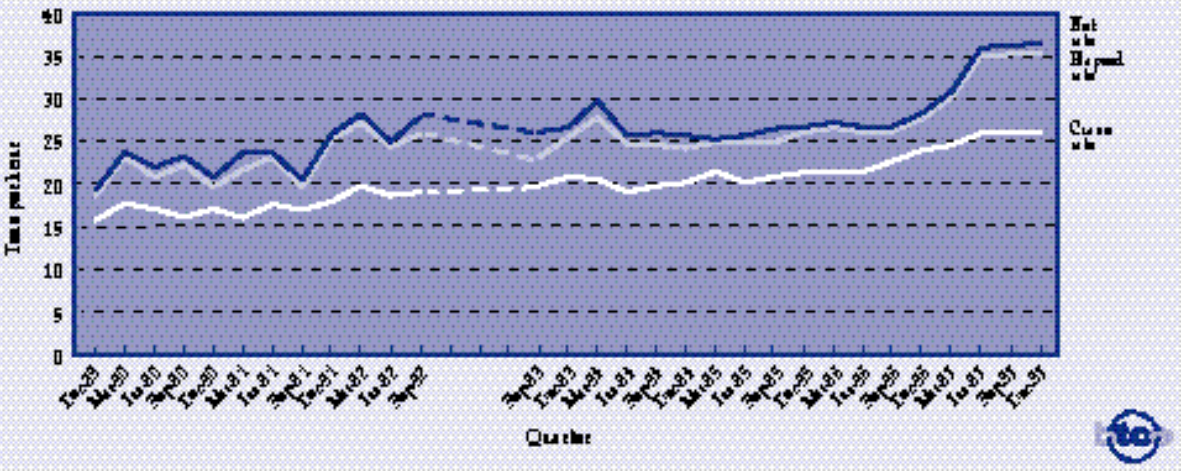
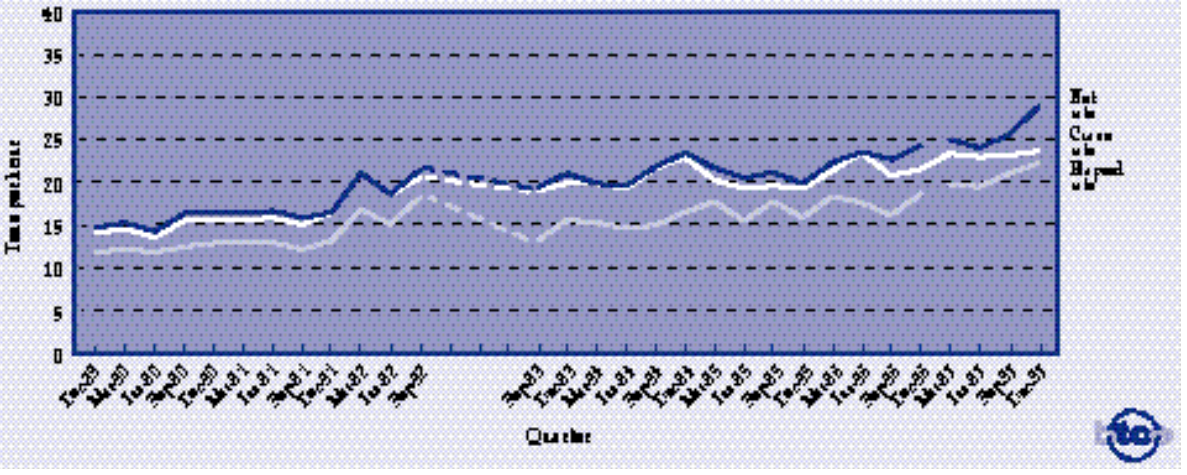


FIGURE 6 FREMANTLE CONTAINER TERMINALS PERFORMANCE—TEUS PER HOUR

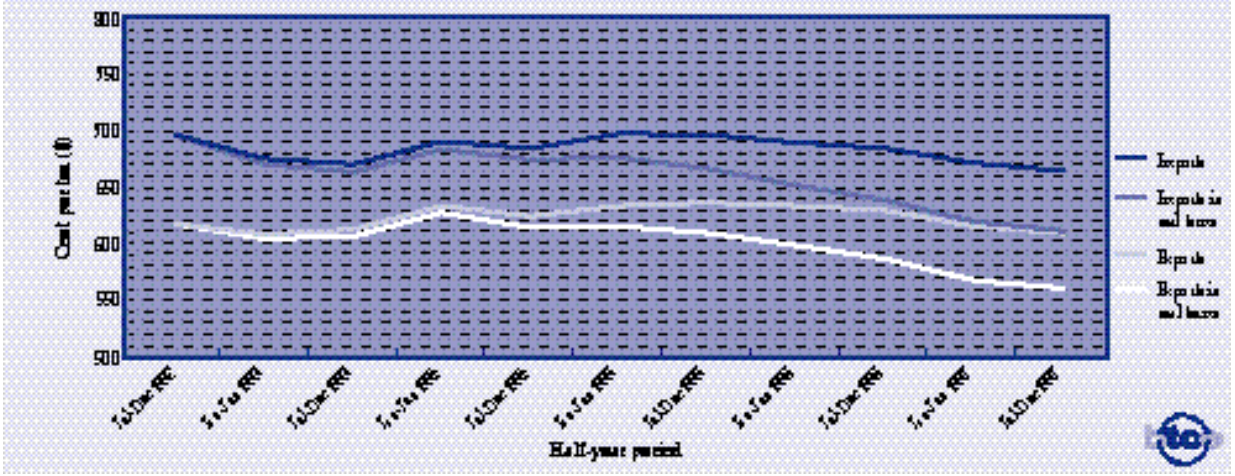


Notes *Elapsed rates and net rates from the March quarter 1997 are not directly comparable with earlier figures (except at Adelaide) due to changes in a terminal operator's information systems. Award shift breaks are included in the measure of time used to calculate net rates and crane rates to the end of the September quarter 1992, and are excluded from the measure of time in later quarters. Data are unavailable for the December quarter 1992 to the June quarter 1993.*

Sources *WIRA, Patrick, P&O Ports and SeaLand.*

FIGURES

FIGURE 7 NATIONAL PORT INTERFACE COST INDEX



Sources *BTCE estimates based on: ship call data supplied by port authorities/corporations; price schedules of port authorities/corporations, towage operators and pilotage service providers; surveys of customs brokers and road transport operators; stevedoring charges data supplied by the ACCC and industry sources; and ABS gross non-farm product deflator data (cat. no. 5206.0).*

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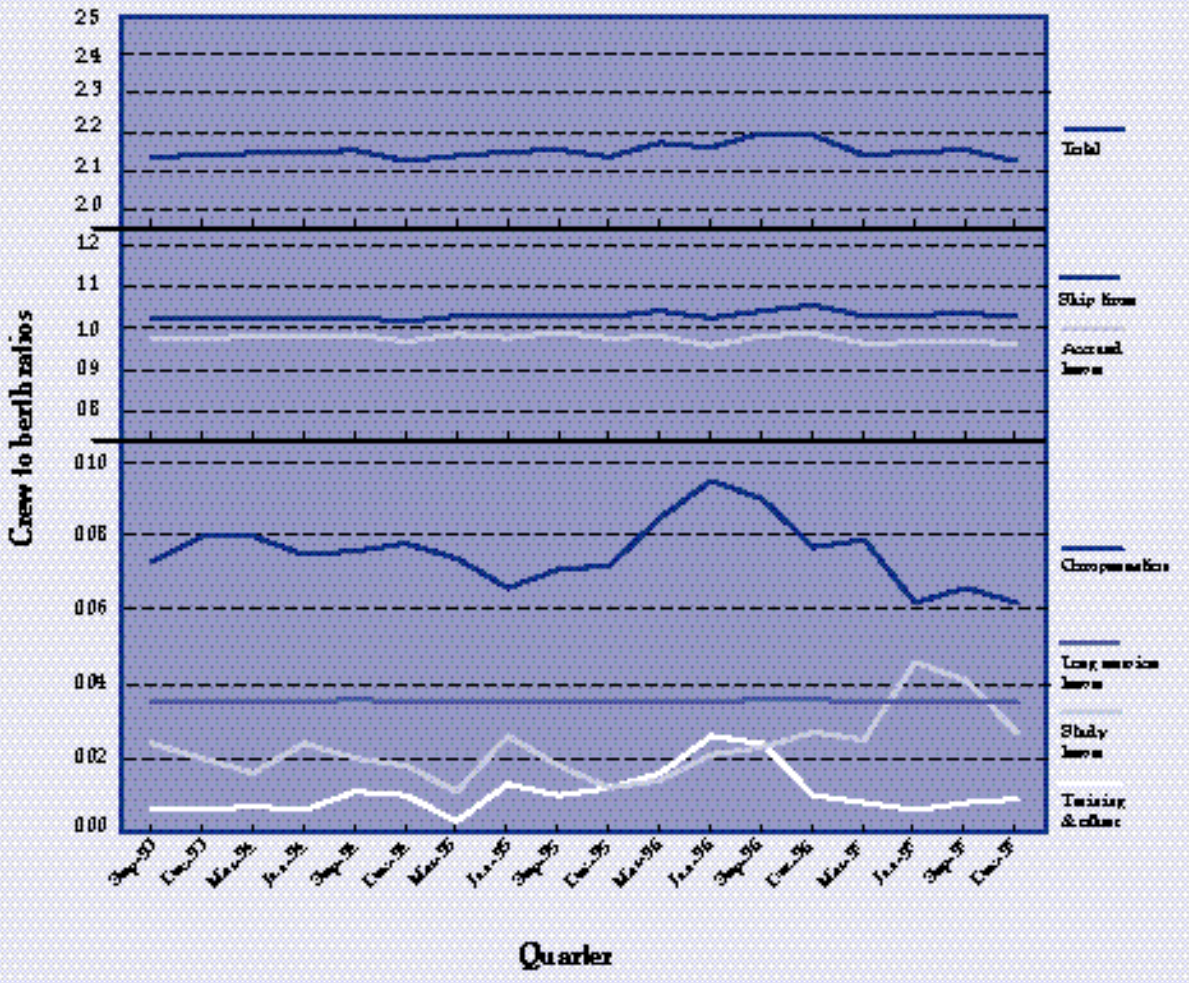
FIGURES

FIGURE 8 CREW TO BERTH RATIOS—AUSTRALIAN MERCHANT SHIPPING



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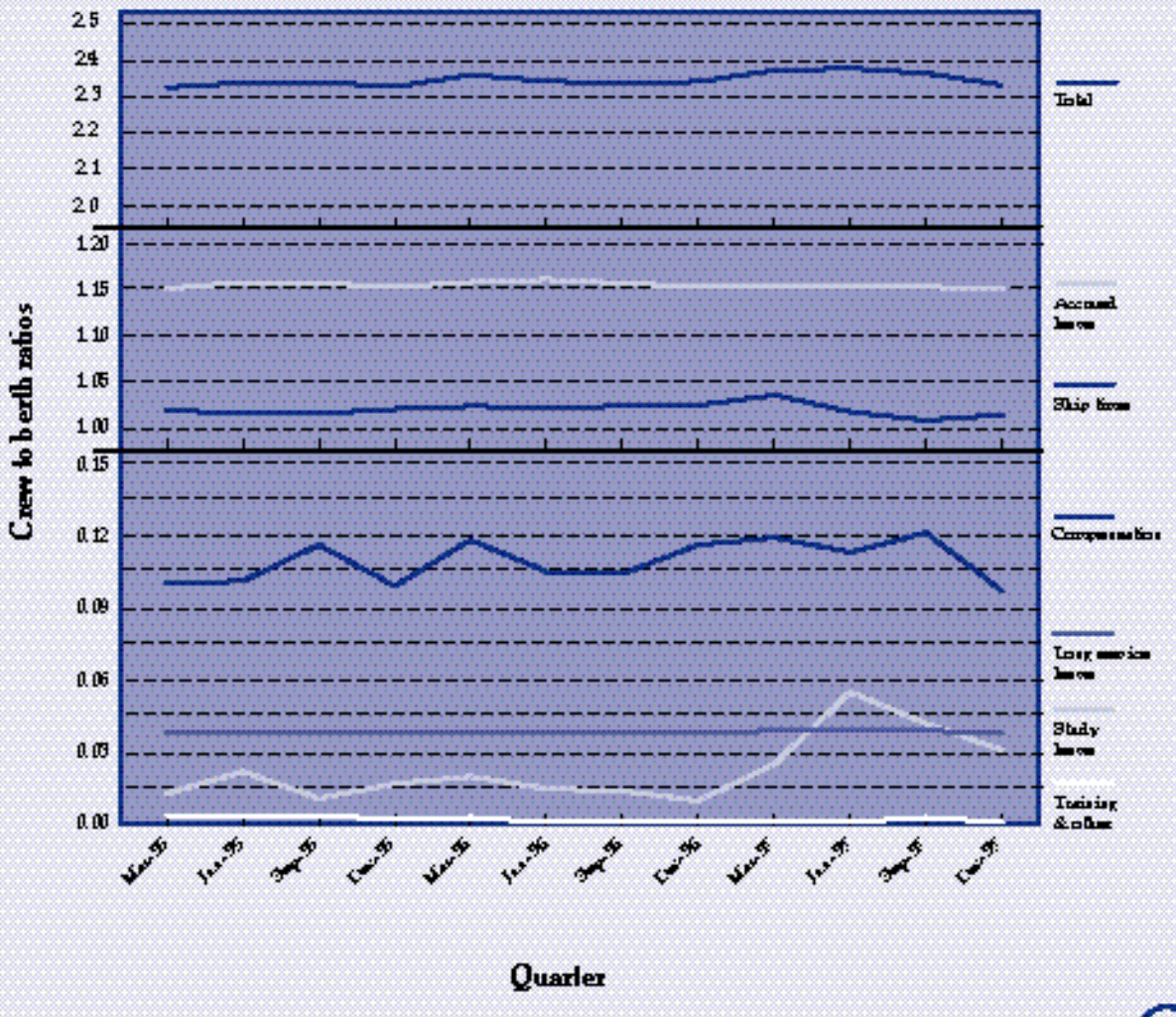
FIGURES

FIGURE 9 CREW TO BERTH RATIOS—AUSTRALIAN OFFSHORE SHIPPING



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TABLES

TABLE 1 CONTAINER TERMINAL PERFORMANCE INDICATORS—CONTAINERS PER HOUR

Port/ indicator	Quarter								
	Dec-95	Mar-96	Jun-96	Sep-96	Dec-96	Mar-97	Jun-97	Sep-97	Dec-97
Brisbane									
Crane rate	15.8	17.6	16.7	16.5	16.9	17.3	16.4	16.1	16.8
Elapsed rate	17.0	19.0	17.2	17.2	17.4	17.3	16.6	16.8	16.8
Net rate	20.6	21.5	20.4	20.4	20.4	19.4	18.7	19.1	19.6
Sydney									
Crane rate	15.0	15.6	16.0	16.1	15.4	17.7	17.7	18.2	18.4
Elapsed rate	17.6	18.9	17.6	18.2	na	18.2	18.5	21.7	21.9
Net rate	21.0	22.1	22.4	23.3	22.7	25.7	25.5	27.9	27.6
Melbourne									
Crane rate	16.3	17.0	18.4	19.6	17.8	19.0	19.0	18.6	18.8
Elapsed rate	18.8	20.2	20.5	21.1	17.9	19.5	20.3	20.5	19.9
Net rate	21.9	23.4	25.9	25.6	21.7	23.0	24.0	23.5	22.6
Adelaide									
Crane rate	18.8	18.9	18.2	19.3	19.6	19.6	21.0	21.1	21.4
Elapsed rate	22.8	23.3	22.0	22.2	22.6	24.0	28.3	28.4	29.2
Net rate	23.3	23.8	22.5	22.8	23.1	24.6	29.1	29.2	30.1
Fremantle									
Crane rate	16.2	17.9	20.0	17.8	18.2	19.4	19.0	18.8	18.9
Elapsed rate	13.4	15.7	14.8	13.4	15.6	16.2	15.9	17.0	18.9
Net rate	16.7	18.9	20.0	19.4	20.5	20.6	19.8	20.6	23.2
Five ports									
Crane rate	15.9	16.9	17.7	18.0	17.1	18.4	18.3	18.3	18.5
Elapsed rate	17.7	19.3	18.6	19.0	na	18.6	19.0	20.4	20.5
Net rate	20.9	22.3	23.4	23.5	21.8	23.4	23.6	24.3	24.3

na not available

Notes 1. Elapsed rates and net rates from March quarter 1997 onwards are not directly comparable with earlier figures (except at Adelaide) due to changes in a terminal operator's information systems.

2. The data in this table are expressed in containers per hour and therefore are not directly comparable with the teus per hour data in table 14.

Sources Patrick, P&O Ports and SeaLand.

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TABLE 2 AVAILABILITY OF BERTH, PILOTAGE AND TOWAGE SERVICES AT THE SCHEDULED/CONFIRMED TIME, DECEMBER QUARTER 1997

(Number of ship calls)

	Delay (hrs)								Total no. of ship
Port/operation	**0**	**1**	**2**	**3**	**4**	**5–10**	**11–20**	**>20**	**calls**
Brisbane									
Berth availability	**36**	**1**	**0**	**0**	**0**	2	1	0	40
Pilotage	**40**	**0**	0	0	0	0	0	0	40
Towage	**40**	**0**	0	0	0	0	0	0	40
Sydney									
Berth availability	**57**	**0**	**0**	**1**	**0**	9	6	1	74
Pilotage	**74**	**0**	0	0	0	0	0	0	74
Towage	**74**	**0**	0	0	0	0	0	0	74
Melbourne									
Berth availability	**64**	**0**	**1**	**0**	**2**	10	3	4	84
Pilotage	**84**	**0**	0	0	0	0	0	0	84
Towage	**84**	**0**	0	0	0	0	0	0	84
Adelaide									
Berth availability	**25**	**1**	**0**	**0**	**0**	0	1	1	28
Pilotage	**28**	**0**	0	0	0	0	0	0	28
Towage	**28**	**0**	0	0	0	0	0	0	28
Fremantle									
Berth availability	**56**	**1**	**0**	**1**	**0**	4	4	0	66
Pilotage	**66**	**0**	0	0	0	0	0	0	66
Towage	**66**	**0**	0	0	0	0	0	0	66
Five ports									
Berth availability	**238**	**3**	**1**	**2**	**2**	25	15	6	292
Pilotage	**292**	**0**	0	0	0	0	0	0	292
Towage	**292**	**0**	0	0	0	0	0	0	292

Note *Data for individual ports should be interpreted with caution as there may be significant inter-port variation in factors such as the proportion of ship calls that involve fixed-day sailings.*

Source *Data for a sample of ship calls provided by shipping lines.*

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TABLES

TABLE 3 OTHER SHIP WAITING TIME INCIDENTS AT THE FIVE MAINLAND CAPITAL CITY PORTS, DECEMBER QUARTER 1997

	(Number of incidents) Ship waiting time (hrs)							Total no. of incidents
Incident type	**1**	**2**	**3**	**4**	**5–10**	**11–20**	**>20**	
Ship arrived early	1	6	2	3	7	1	2	22
Awaiting labour	0	2	0	6	9	4	1	22
Stevedoring finished early	5	8	4	2	2	0	0	21
Stevedoring finished late	2	2	1	1	6	7	0	19
Crane breakdown	5	1	1	1	2	2	0	12
Industrial action	0	1	0	0	4	3	2	10
Pilot/tug booking not at preferred time	2	4	1	1	1	0	0	9
Ship repairs or maintenance	0	0	2	1	1	4	0	8
Weather or tides	1	2	1	1	2	1	0	8
Closed port—holidays	0	0	0	0	0	1	7	8
Awaiting cargo	1	0	0	2	2	1	0	6
Other[a]	2	3	1	2	5	0	1	14
Total incidents	**19**	**29**	**13**	**20**	**41**	**24**	**13**	**159[b]**

a. For example, ship arrived late, ship moved to another berth or terminal, ship departure delayed due to congestion at the next port of call, faulty lashing gear or stowaways.

b. These incidents affected 119 of the 292 ship calls covered in table 2.

Source Data for a sample of ship calls provided by shipping lines.

TABLES

TABLE 4 STEVEDORING AND SHIP ARRIVAL RELIABILITY INDICATORS, SEPTEMBER AND DECEMBER QUARTERS 1997

(per cent)

Indicator	Brisbane		Sydney		Melbourne		Adelaide		Fremantle	
	Jul–Sep	Oct–Dec	Jul–Sep	Oct–Dec	Jul–Sep	Oct–Dec	Jul–Sep	Oct–Dec	Jul–Sep	Oct–Dec
Stevedoring										
Stevedoring completion	na	58	24	27	na	na	na	na	na	na
Stevedoring rate	61	49	62	60	62	59	na	na	na	na
Cargo receival	93	93	93	85	94	97	na	na	na	na
Ship arrival										
Advice at 24 hrs	63	na	53	60	na	na	80	91	58	53
Advice inside 24 hrs	53	na	92	94	na	na	na	na	81	81

na not available.

Sources AAPMA, Patrick and P&O Ports.

TABLE 5 PARAMETERS USED IN THE PORT INTERFACE COST INDEX, 1997

	Brisbane		Sydney		Melbourne		Adelaide		Fremantle	
	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec[p]
Vessel size										
GRT	17215	17215	17215	17215	17215	17215	17215	17215	17215	17215
NRT	8372	8372	8372	8372	8372	8372	8372	8372	8372	8372
Teus exchanged[a]										
Total	346	402	713	818	697	724	207	239	330	361
Loaded	267	308	597	680	596	607	172	187	276	298
Empty	79	94	116	138	101	117	35	52	54	63
Loaded inwards	111	139	364	419	305	324	63	74	140	160
Loaded outwards	156	169	233	261	291	283	109	113	136	138
Primary produce	-	-	-	-	-	-	41	-	-	-
Ship call parameters[a]										
Number of port calls	3	4	4	3	3	3	4	4	7	6
Elapsed berth time (hrs)	23.3	24.3	38.6	38.6	34.5	36.2	15.0	11.3	18.1	18.1

- not required

p Provisional. Fremantle Port Authority port call data were not available at time of publication. Total teus exchanged and the number of port calls made are based on preliminary calculations by Fremantle Port Authority.

a. Mean value for ships between 15 000 and 20 000 GRT.

Sources BTCE estimates based on ship call data supplied by relevant port authorities/corporations and other port service providers.

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TABLE 6 PORT AND RELATED CHARGES, 1997

	Brisbane		Sydney		Melbourne		Adelaide		Fremantle	
	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec
Ship-based charges ($/teu)										
Conservancy	6.46	5.56	-	-	-	-	7.27	5.03	1.60	1.46[p]
Tonnage	-	-	9.90	8.63	9.88	8.44	17.99	14.41	7.68	7.01[p]
Pilotage	14.81	12.75	4.77	4.16	7.87	7.57	11.37	9.83	6.68	5.79[p]
Towage	29.21	25.15	13.70	11.95	10.55	10.15	59.50	51.47	33.14	27.26[p]
Mooring & unmooring	4.82	4.15	4.41	3.85	3.19	1.38	-	-	3.34	3.05[p]
Berth hire[a]	-	-	-	-	11.87	11.95	-	-	-	-
Total[b]	55.30	47.61	32.78	28.59	43.37	39.49	96.13	80.75	52.43	44.56[p]
Cargo-based charges ($/teu)										
Wharfage										
Imports	26.00	26.00	60.00	60.00	37.40	34.30	65.00	53.00	49.79	47.30
Exports	26.00	26.00	45.00	45.00	37.40	34.30	61.20	53.00	49.79	47.30
Harbour dues	42.00	42.00	-	-	-	-	-	-	-	-
Berth charge	-	-	-	-	-	-	-	-	14.63	13.90
Total port and related charges ($/teu)[b]										
Loaded imports	123.30	115.61	92.78	88.59	80.77	73.79	161.13	133.75	116.85	105.76[p]
Loaded exports	123.30	115.61	77.78	73.59	80.77	73.79	157.34	133.75	116.85	105.76[p]
Charges per ship visit ($/visit)										
Total ship-based charges	19157	19157	23380	23380	30211	28599	19873	19296	17278	16088
Empty teus[c]	1126	1340	1160	1380	1099	1168	0	0	437	485

- not applicable
p Provisional. See table 5 notes for details.
a. Charged by stevedores and itemised separately from basic stevedoring charge.
b. Components may not sum to totals due to rounding.
c. Sum of wharfage, harbour dues and berth charge per empty teu, multiplied by average exchange of empty teus.
Note Port and related charges are based on the parameters described in table 5.

Sources BTCE estimates based on: ship call data supplied by relevant port authorities/corporations, and price schedules of relevant port authorities/corporations, towage operators and pilotage service providers.

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TABLE 7 PORT INTERFACE COSTS, 1997

($/teu)

	Brisbane		Sydney		Melbourne		Adelaide		Fremantle	
	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec
Imports										
Ship-based charges	55	48	33	29	43	39	96	81	52	45[p]
Cargo-based charges	68	68	60	60	37	34	65	53	64	61
Stevedoring[p2]	188	188	188	188	188	188	188	188	188	188
Customs brokers' fees	121	123	154	154	138	138	131	131	145	145
Road transport charges	176	179	288	288	251	252	157	157	192	194
Total imports[a]	609	606	722	718	658	651	638	610	642	632
Exports										
Ship-based charges	55	48	33	29	43	39	96	81	52	45[p]
Cargo-based charges	68	68	45	45	37	34	61	53	64	61
Stevedoring[p2]	188	188	188	188	188	188	188	188	188	188
Customs brokers' fees	78	78	110	110	89	89	71	71	73	70
Road transport charges	176	179	288	288	251	252	157	157	192	194
Total exports[a]	566	561	663	659	609	602	574	551	569	558

p Provisional. See table 5 notes for details.

p2 Provisional pending updating of stevedoring charge using detailed survey data.

a. Components may not sum to totals due to rounding.

Notes 1. Based on parameters described in table 5.

2. Waterline data on customs brokers' fees and road transport charges are collected for the purpose of monitoring trends in charges over time. They should not be used for inter-port comparisons, as sample characteristics may vary between ports.

3. The stevedoring charge used in Waterline is a weighted average for several major Australian ports. Stevedoring charges vary between ports but detailed data for individual ports are not publicly available.

Sources BTCE estimates based on: ship call data supplied by relevant port authorities/corporations; price schedules of relevant port authorities/corporations, towage operators and pilotage service providers; surveys of customs brokers and road transport operators; and stevedoring charges data supplied by the ACCC and industry sources.

TABLES

TABLE 8 FINANCIAL PERFORMANCE INDICATORS, SELECTED AUSTRALIAN PORT AUTHORITIES/CORPORATIONS, 1995/96 & 1996/97

	Brisbane		Sydney		Melbourne		Adelaide		Fremantle	
	1995/96	1996/97	1995/96	1996/97	1995/96	1996/97[f]	1995/96	1996/97	1995/96	1996/97
Indicator				*per cent*						
Return on assets[a]	5.8	6.7	15.8	15.5	e	12.7	–23.6[g]	19.6	14.6	14.9
Dividend payout ratio[b]	38.8	36.3	56.5	61.3	e	27.4	–7.8[g]	64.6	0.0	0.0
Debt/equity[c]	0.1	0.1	109.3	102.9	e	33.6	133.0	87.6	1490.2	109.2
				$ million						
EBIT[d]	22.6	28.1	49.8	52.0	e	59.6	–32.0[g]	23.1	14.5	15.8
Average total assets in service	390.5	415.7	314.5	335.4	e	469.8	135.2	117.6	99.1	106.1
Dividends paid	5.8	7.3	15.1	14.6	e	7.4	3.4	4.0	0.0	0.0
Operating profit[d]	15.0	20.0	26.8	23.8	e	27.1	–43.3[g]	6.1	8.3	5.0
Total debt	0.4	0.4	150.0	150.6	e	114.4	65.5	45.0	54.5	44.2
Total equity	375.6	399.4	137.2	146.4	e	340.3	49.2	51.4	3.7	40.5

a. EBIT as a proportion of average total assets. EBIT is earnings before interest and tax.

b. Dividends paid out as a proportion of operating profit.

c. Total debt as a proportion of total equity.

d. Includes abnormals.

e. The Melbourne Port Corporation commenced operation on 1 March 1996 as port landlord, being one of three entities taking over the functions of the former Port of Melbourne Authority. Thus consistent financial data are not available for the 12 month period ending 30 June 1996.

f. It should be noted that these data are based on the Melbourne Port Corporation's audited financial statements for the period 1 March 1996 to 30 June 1997 as published in the 1997 Annual Report.

g. Industry Commission definitions used in Waterline include abnormal items. The 1995/96 figures for Ports Corp South Australia include abnormals of –$49.3 million which relate to a write-down in asset values to accommodate a change in accounting policy to use deprival values. EBIT before abnormals was $17.3 million, operating profit after tax and before abnormals was $6.0 million and return on assets before abnormals was 12.8 per cent in 1995/96.

Source AAPMA.

TABLE 9 NON-FINANCIAL PERFORMANCE INDICATORS, SELECTED AUSTRALIAN PORTS, 1997

	Brisbane		Sydney		Melbourne		Adelaide		Fremantle		Five ports[d]	
Indicator	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec
Total cargo throughput ('000 tonnes)	10740	9733	10482	11390	9188	9434	3118	2387	11836	10612	45364	43557
Non-containerised general cargo ('000 tonnes)[a]	412	540	392	404	959	1057	129	150	353	377	2245	2527
Containerised cargo (teus exchanged)												
Full import	43883	55283	180102	214301	209843	243319	13226	16261	44125	54176	491179	583340
Empty import	23720	26982	9419	8165	34265	39124	5866	8461	9318	10474	82588	93206
Full export	61627	67356	115636	133463	200601	213186	22895	24630	43079	46444	443838	485079
Empty export	7650	10165	52172	62252	35477	49080	1500	2939	7802	10946	104601	135382
Total teus	136880	159786	357329	418181	480186	544709	43487	52291	104324	122040	1122206	1297007
Average total employment[b]	213	180	229	202	71	70	204	170	191	189	907	811
Turnaround time (hrs)[c]												
Median result	30.3	31.9	36.1	37.8	39.0	41.1	17.0	18.1	22.7	na	-	-
95th percentile	53.7	53.5	68.8	67.1	68.6	72.8	28.3	37.0	53.5	na	-	-

- not applicable

na not available

a. Excludes bulk cargoes.

b. Comparisons between ports are not appropriate since each port authority/corporation has a different role and structure.

c. Turnaround times refer only to ships calling at container terminals. Comparisons between ports are not appropriate since each port has a different set of parameters to measure the turnaround time. Normally, only inter-temporal comparison at individual ports is of use.

d. Components may not sum to totals due to rounding.

Source AAPMA.

TABLES

TABLE 10 MERCHANT SHIPPING CREW TO BERTH RATIOS BY ACTIVITY AND CREW CLASSIFICATION, DECEMBER QUARTER 1997[p]

Crew type	Ship time	Accrued leave	Compen-sation	Long service leave	Study leave	Training & other	Total[a]
Deck officers	1.041	0.970	0.033	0.035	0.064	0.021	2.164
Engineers	1.043	0.983	0.038	0.036	0.056	0.017	2.172
All officers	1.042	0.977	0.036	0.035	0.060	0.019	2.168
Integrated ratings	1.013	0.949	0.089	0.034	0.000	0.000	2.085
Catering crew	1.023	0.952	0.076	0.034	0.000	0.000	2.086
All ratings	1.016	0.950	0.085	0.034	0.000	0.000	2.085
All crew	1.028	0.962	0.062	0.035	0.027	0.009	2.123
Previous quarter	1.035	0.967	0.066	0.035	0.041	0.008	2.152
Initial level[b]	1.025	0.971	0.073	0.035	0.024	0.006	2.133

p Provisional.
a. Components may not sum to totals due to rounding.
b. Initial level for September quarter 1993.

Source Data provided by ship operators.

TABLE 11 OFFSHORE SHIPPING CREW TO BERTH RATIOS BY ACTIVITY AND CREW CLASSIFICATION, DECEMBER QUARTER 1997[p]

Crew type	Ship time	Accrued leave	Compen-sation	Long service leave	Study leave	Training & other	Total[a]
Deck officers	1.015	1.153	0.022	0.038	0.080	0.000	2.308
Engineers	1.016	1.153	0.028	0.037	0.050	0.000	2.285
All officers	1.016	1.153	0.025	0.038	0.065	0.000	2.297
Integrated ratings	1.011	1.150	0.149	0.038	0.000	0.000	2.348
Catering crew	1.043	1.153	0.258	0.041	0.000	0.000	2.495
All ratings	1.015	1.150	0.163	0.039	0.000	0.000	2.368
All crew	1.016	1.151	0.097	0.038	0.031	0.000	2.334
Previous quarter	1.010	1.153	0.121	0.039	0.042	0.002	2.366
Initial level[b]	1.021	1.151	0.100	0.038	0.013	0.003	2.327

p Provisional.
a. Components may not sum to totals due to rounding.
b. Initial level for March quarter 1995.

Source Data provided by ship operators.

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TABLE 12 SINGLE VOYAGE PERMITS USED AND CARGO CARRIED, 1990/91 TO 1996/97

	Jul–Sep		Oct–Dec		Jan–Mar		Apr–Jun		Total	
Year	Permits	Tonnes	Permits	Tonnes	Permits	Tonnes	Permits	Tonnes	Permits	Tonnes
1990/91	32	195711	38	450622	44	262431	26	189565	140	1098329
1991/92	34	422161	61	414191	49	243049	59	241373	203	1320774
1992/93	62	238017	69	147514	83	211430	93	298769	307	895730
1993/94	108	202252	125	292664	119	412029	118	498571	470	1405516
1994/95	110	899222	112	970068	116	832308	90	665499	428	3367097
1995/96	91	1077022	100	653940	107	575662	123	930077	421	3236701
1996/97	142	1026438	146	1110332	135	661784	149	1056709	572	3855263

Source *Maritime Transport Division of the Department of Workplace Relations and Small Business.*

TABLE 13 SINGLE VOYAGE PERMITS, DECEMBER QUARTER 1997[a]

Cargo type	Permits	Tonnes
Petroleum products	11	249800
Crude oil and feedstock	12	454200
Liquefied gas	3	11740
Other bulk liquids	14	53900
Dry bulk	9	332400
General cargo		
- containerised	163	210594
- break bulk	12	6624
Total	224	1319258

a. The number of single voyage permits issued and cargo to be carried, 1 October to 31 December 1997.

Source *Maritime Transport Division of the Department of Workplace Relations and Small Business.*

TABLE 14 CONTAINER TERMINAL PERFORMANCE INDICATORS, SELECTED AUSTRALIAN PORTS—TEUS PER HOUR

	Dec-93	Mar-94	Jun-94	Sep-94	Dec-94	Mar-95	Jun-95	Sep-95	Dec-95	Mar-96	Jun-96	Sep-96	Dec-96	Mar-97	Jun-97	Sep-97	Dec-97
Brisbane																	
Ships handled	111	112	140	140	187	136	123	135	132	124	133	140	141	156	164	162	177
Total teus	46529	37820	52983	51596	50574	41723	47065	58851	46439	39037	51008	66115	62904	47471	65572	73184	71043
Crane rate	21.1	20.4	20.8	20.3	18.9	18.4	18.0	18.6	18.9	20.0	19.9	20.6	20.6	20.0	20.5	20.2	20.5
Elapsed rate	24.6	20.9	22.6	21.5	19.6	17.8	18.6	19.5	21.0	21.5	20.5	20.9	21.1	20.3	20.6	21.2	20.8
Net rate	27.5	23.9	25.9	25.7	23.4	20.9	21.6	22.5	24.6	24.4	24.3	25.1	24.9	22.7	23.3	24.0	24.2
Sydney																	
Ships handled	238	177	240	223	221	218	202	192	203	206	216	228	249	251	249	243	266
Total teus	139321	116914	129586	142659	152326	144868	140113	148431	143746	146038	148290	156344	174982	158323	167705	183978	201535
Crane rate	20.4	16.4	18.5	16.9	16.0	18.9	18.1	19.3	18.5	19.5	19.9	20.3	19.6	22.3	22.6	23.5	23.5
Elapsed rate	22.0	18.7	20.8	19.4	20.3	21.6	20.7	23.4	21.8	23.8	22.1	23.1	na	22.7	23.6	28.0	28.2
Net rate	28.3	28.3	29.1	25.0	26.3	28.0	26.6	29.9	25.7	28.0	27.9	29.5	28.9	32.2	32.7	36.1	35.5
Melbourne																	
Ships handled	306	211	265	267	244	265	228	221	227	228	262	274	282	230	249	268	281
Total teus	143350	153420	158849	159039	180134	173338	152983	161943	173566	162911	170884	203371	202376	162156	177070	208200	223465
Crane rate	18.9	19.7	19.1	18.5	20.2	20.8	19.4	19.8	19.6	20.5	22.3	24.5	22.4	23.6	23.5	23.6	23.6
Elapsed rate	20.0	19.5	19.2	17.9	21.5	23.9	23.7	24.1	22.8	24.4	25.0	26.5	22.1	24.3	25.1	26.0	25.2
Net rate	22.9	23.8	22.7	21.3	25.8	26.9	25.9	26.6	26.4	28.3	31.7	32.2	27.2	28.7	29.7	29.9	28.7
Adelaide																	
Ships handled	26	28	34	31	33	35	50	34	42	47	63	70	74	69	65	68	66
Total teus	12616	13243	12461	13167	15038	16832	21676	14319	17318	15955	18803	20519	23351	21963	20933	25982	25188
Crane rate	20.9	20.6	19.1	19.8	20.2	21.5	20.2	20.9	21.4	21.5	21.5	22.7	24.0	24.6	26.0	26.1	26.0
Elapsed rate	25.5	27.8	24.7	24.6	24.2	24.9	24.9	24.9	26.1	26.6	26.1	26.2	27.7	30.2	35.1	35.2	35.4
Net rate	26.6	29.8	25.7	26.0	25.7	25.3	25.7	26.5	26.7	27.2	26.7	26.8	28.3	30.9	36.0	36.2	36.5
Fremantle																	
Ships handled	115	127	135	121	124	128	136	139	124	143	153	159	161	159	164	166	173
Total teus	40910	40587	40986	36635	46969	44388	45308	50050	44662	47597	51113	50791	55593	51784	52092	57903	64243
Crane rate	19.8	19.8	19.3	21.6	22.9	20.2	19.3	19.5	19.2	21.2	23.4	20.8	21.5	23.3	22.9	23.1	23.6
Elapsed rate	15.5	15.2	14.6	14.9	16.5	17.7	15.5	17.7	15.8	18.3	17.6	16.0	18.6	19.7	19.5	21.0	22.2
Net rate	21.0	19.8	19.5	21.8	23.4	21.6	20.5	21.1	19.8	22.2	23.5	22.6	24.2	25.0	24.0	25.5	28.8
Five ports																	
Ships handled	796	655	814	782	809	782	739	721	728	748	827	871	907	865	891	907	963
Total teus	382726	361984	394865	403096	445041	421149	407145	433594	425731	411538	440098	497140	519206	441697	483372	549247	585474
Crane rate	19.9	18.8	19.2	18.5	18.9	19.9	18.9	19.5	19.2	20.3	21.3	22.3	21.2	22.8	22.8	23.2	23.3
Elapsed rate	21.0	19.2	19.9	18.9	20.4	21.9	21.2	22.5	21.7	23.2	22.6	23.6	na	23.1	23.8	26.0	25.8
Net rate	25.3	25.0	25.0	23.4	25.4	26.1	25.0	26.5	25.3	27.1	28.5	29.1	27.2	29.0	29.5	31.0	30.8

na not available

Notes 1. Elapsed rates and net rates from the March quarter 1997 onwards are not directly comparable with earlier figures (except at Adelaide), due to changes in a terminal operator's information systems.

2. For data back to the December quarter 1989, refer to Waterline 2.

Sources WIRA, Patrick, P&O Ports and SeaLand.

ABBREVIATIONS

AAPMA	Association of Australian Ports and Marine Authorities
ABS	Australian Bureau of Statistics
ACCC	Australian Competition and Consumer Commission
BTCE	Bureau of Transport and Communications Economics
GRT	Gross Registered Tonnage
LOA	Length Overall
NRT	Net Registered Tonnage
SVP	Single voyage permit
teu	Twenty-foot equivalent unit
WIRA	Waterfront Industry Reform Authority

DEFINITIONS

Elapsed time—the total time over which the ship is worked, measured from labour aboard to labour ashore.

Elapsed rate—the number of containers or teus moved per elapsed hour.

Net time—the elapsed time minus the time unable to work the ship due to award shift breaks, ship's fault, weather, awaiting cargo, industrial disputes, closed holidays, or shifts not worked at the ship operator's request.

Net rate—the number of containers or teus moved per net hour.

Crane rate—the number of containers or teus moved per net crane hour.

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