



Benchmarking of Port Prices in Australia



Final report prepared for
Essential Services Commission of South Australia, April 2007

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EXECUTIVE SUMMARY

Purpose and scope

This benchmarking study compares the prices charged in South Australian ports with those charged in a cross-section of other Australian ports.

Under the *Maritime Services (Access) Act 2000* (SA) — the MSA Act — the Essential Services Commission of South Australia (ESCOSA) is responsible for the economic regulation of certain South Australian ports. The Act covers the common-user terminals at Port Adelaide, Port Giles, Port Pirie, Port Lincoln, Wallaroo, Thevenard and Ardrossan. These ports, with the exception of Ardrossan, which is managed by Ausbulk Ltd (ESCOSA 2004), are privately operated by Flinders Ports Pty Ltd.

Section 9 of the MSA Act, requires the Commission to keep maritime services under review to determine whether regulation should continue, and if so whether current forms of regulation are appropriate. The current Ports Price Determination expires on 30 October 2007, and the Commission intends to undertake a Port Pricing and Access Review before that date.

The Commission is seeking to improve its understanding of the pricing behaviour of the managers of regulated ports under the current price regulation regime. The particular concern of the Commission is whether the prices charged for essential maritime services in the regulated ports suggest that a change in regulatory strategy is warranted. This study is intended to provide information that will assist the Commission in formulating its views on this matter.

Only some of the services regulated under the MSA Act (those classified as essential maritime services) are subject to price regulation. The primary focus of this report is on the prices charged for these services. However, to provide a more complete picture of the charges incurred in shipping through the ports, the charges for the major unregulated services — pilotage and towage — have been included in the analysis. No conclusions are intended to be drawn from trends in pilotage and towage charges discussed in this report.

Approach

The approach taken in the benchmarking study is broadly similar to that undertaken by ESCOSA in its monitoring reports. However, both the range of ports and the range of commodities included in the analysis have been greatly extended. A consolidated index has also been constructed as a single indicator of how the overall level of prices in SA ports compares with the overall level of prices in interstate ports. Using this index, changes in SA port charges over time have been tracked and compared with changes in prices at interstate ports. Finally, separate indicators have been constructed to compare (a) the level of prices in South Australia and interstate ports for the cargoes generally considered to be ‘captive’ (grain and bulk minerals) and (b) the level of prices in South Australia and interstate ports for other cargoes.

FIGURE E- 1: AVERAGE EMS CHARGES PER TONNE OF CARGO LOADED/DISCHARGED: VARIOUS MODEL SHIPS

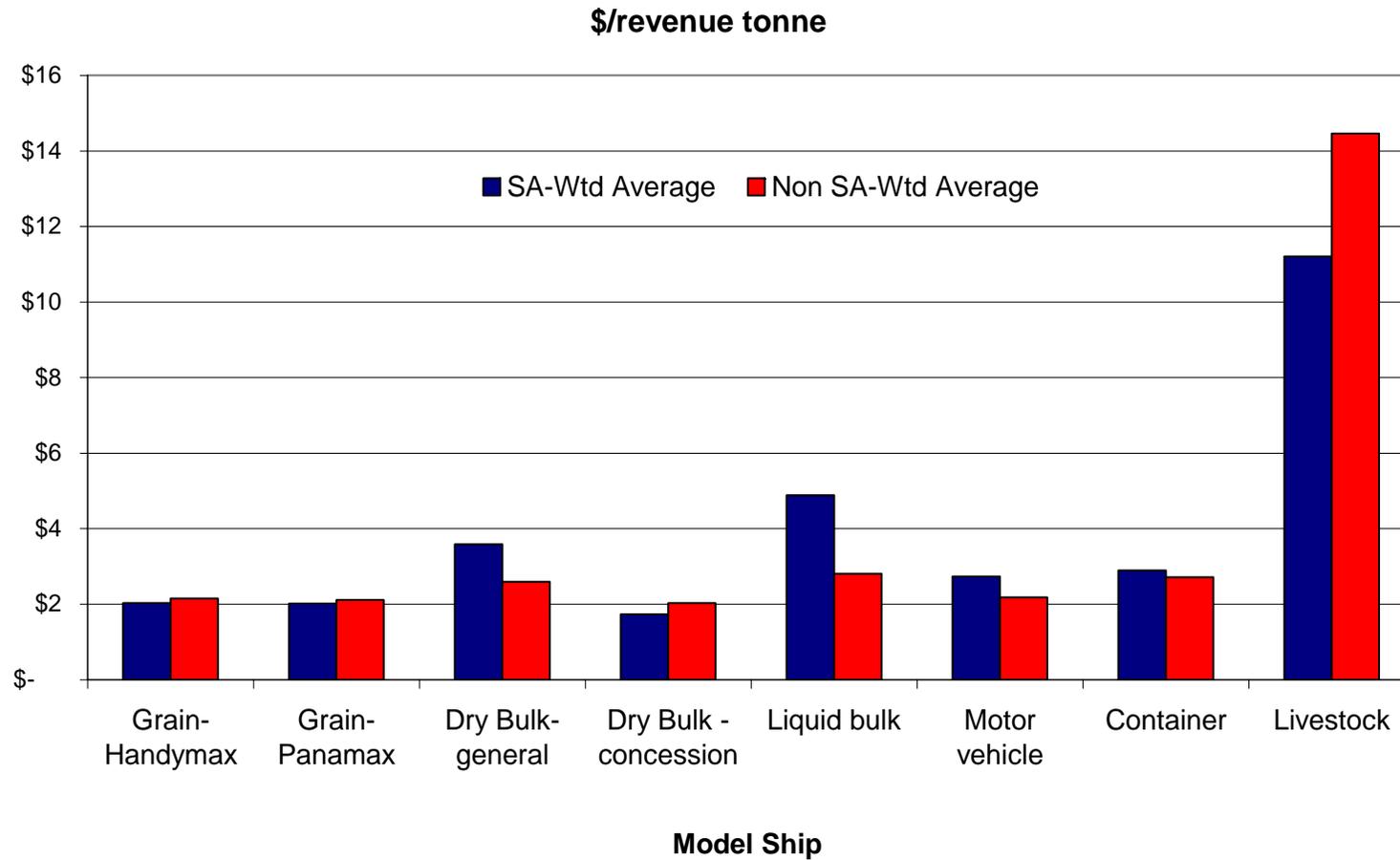
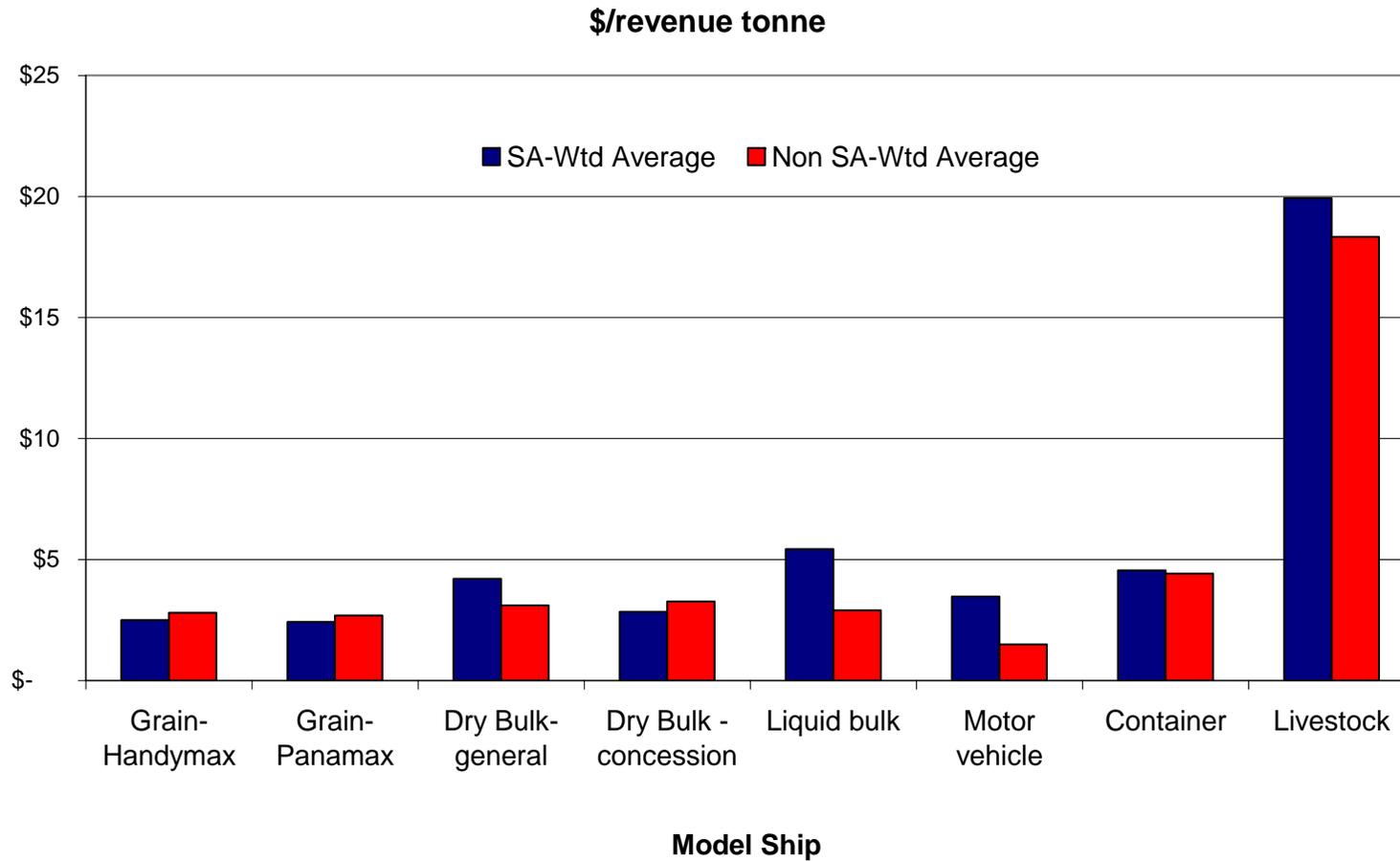


FIGURE E- 2: COMPARISON OF WEIGHTED AVERAGE CHARGES – INDIVIDUAL PORTS (\$/REVENUE TONNE)



Comparison of price levels for particular commodities

The analysis undertaken in this study indicates that there is considerable variability in relative port prices between commodity groups. South Australian charges are low relative to those in other ports from grain and certain dry bulk cargoes that enjoy low commodity-specific rates; but they are relatively high for the general run of dry bulk cargo, for liquid bulks, containers, cars and livestock.

Comparison of overall price levels

Overall, charges for EMS in South Australia are somewhat higher (we estimate 17% higher) than the average of the non-South Australian comparator ports examined in this report. However, they lie within the range of prices charged by comparator ports. Of the eleven comparator ports examined, three have charges that, taken as a whole, are significantly higher than those in force in South Australia; two are (roughly) at the same level; and five are significantly less expensive.

There are many reasons level of charges may differ between ports, most of which do not relate to either avoidable inefficiencies or excessive profits. Two of these reasons are of particular interest here.

The first of these is scale. Flinders Ports in South Australia is unusual in that it is a single port corporation whose operations cover a number of geographically dispersed sites. Until recently, the only broadly comparable port organisation in Australia was the Ports Corporation of Queensland. (The formation of the Tasmanian Ports Corporation has added a third similar enterprise). The operations of all of the other Australian ports are located in reasonable physical proximity to each other.

There are diseconomies associated with this. While operating several small ports under a single ownership eliminates some of the disadvantages of small scale, it cannot eliminate them all. In particular, it cannot eliminate low physical asset utilisation rates at remote sites. In addition, there are costs as well as benefits associated with sharing resources over several remote sites.

Moreover, even in aggregate the throughput of the South Australian ports is not great. Adelaide does not have the large container throughput of the other capital city ports; and the SA regional ports do not enjoy the large-scale mining exports that characterise Newcastle, Gladstone, and Port Kembla. As a result, the total tonnage through all of the SA ports combined is less than that of most of the individual comparator ports. The average throughput of the seven SA ports is in the order of 2.5 million revenue tonnes; for the eleven comparator ports, the average is approximately 35 million.

The second factor that could provide a partial explanation of the difference in port charges is the under-pricing of many of the (Government-owned) comparator ports. It is widely acknowledged that many, though not all, Australian ports, fail to earn an adequate rate of return on the capital investment in them.

This is sustainable in a government enterprise, but not for a privatised port. Flinders Ports and Ausbulk will be constrained to price to achieve commercial returns, while publicly owned comparator ports may price at a lower level.

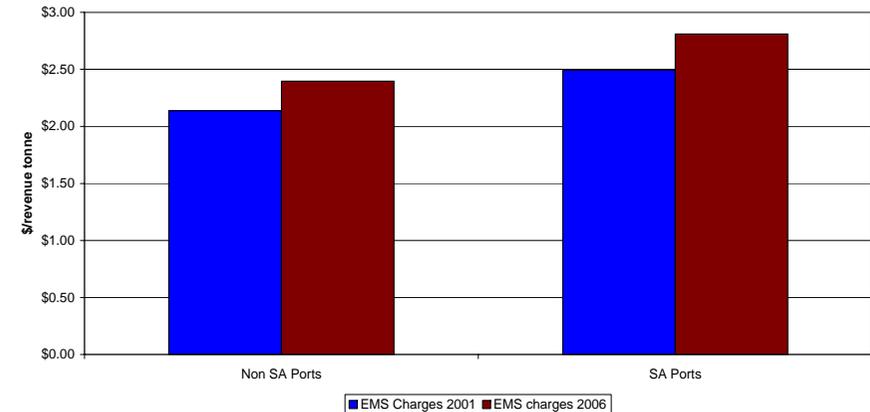
The Productivity Commission’s report on the performance of Government Trading Enterprises provides some insight into the possible magnitude of this effect (Productivity Commission, 2006). The report provides information on seven of the eleven comparator ports. An analysis of this data suggests that, on average, the rate of return on capital obtained by these ports was between 2% and 2.5% below the rate of return approved for Dalrymple Bay Coal Terminal (DBCT).

Applying this shortfall to the asset base in the comparator ports provides an estimated revenue shortfall as a result of this under-recovery of slightly in excess of \$100 million across the seven ports. This amounts to approximately 16% of aggregate revenue. The Productivity Commission data therefore suggests that these ports collectively are under-pricing by around 16%, which is almost exactly the observed difference between the SA port prices and those of the comparator ports.

Changes in prices over time

There has been very little change in the ratio of SA to non-SA port prices over the 2000/01-2006/07 periods. We estimate that, in nominal terms, EMS charges have increased by around 12.7% in non-SA ports; in SA ports the estimated increase is 12.2%. In real terms, this equates to declines of 2.5% and 3.0% for non-SA and SA ports, respectively over the 2000/01-2006/07 period. These real estimates are based on general increases in the national consumer price index (CPI) of 15.2% over this period.

FIGURE E- 3: COMPARISON OF INCREASE IN CHARGES OVER TIME

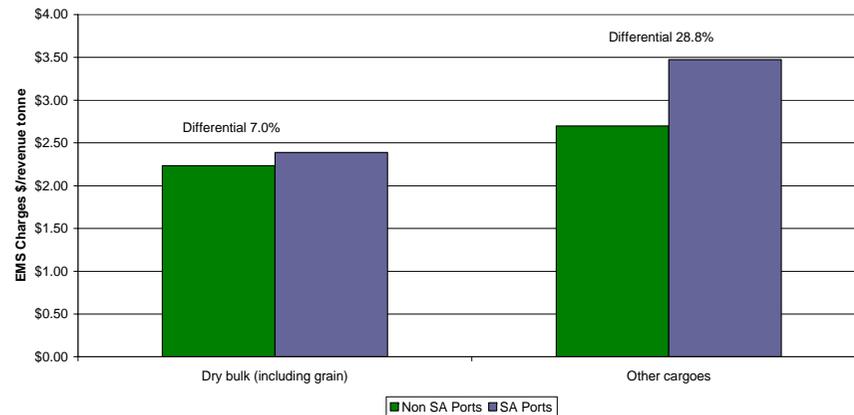


Price differentials for different cargo groups

Dry bulk cargoes have been identified by ESCOSA as a group that is considered to be particularly vulnerable to the abuse of market power by the port service provider, and particular attention has been directed to these cargoes in the monitoring reports.

Analysis was undertaken to assess whether the differences between SA port charges were greater for these cargoes than for others. The results of this analysis are presented in the figure below.

FIGURE E- 4: COMPARISON OF RESULTS OF ANALYSES FOR DIFFERENT CARGO GROUPS



The results show that SA ports are more expensive than the non-SA ports in our sample for both groups of commodities. However, in the case of dry bulk cargoes, the difference is significantly lower. There is a difference of around 7% for dry bulk commodities EMS charges. By contrast, for the ‘other cargo’ group, which includes containers and motor vehicles as well as liquid bulk and livestock, the difference is slightly below 30%.

This result is counter-intuitive, and the reasons for it are unclear. But the most plausible explanations appear to be:

- perceived ability to pay. Much of South Australia’s dry bulk cargoes are low-value exports, and there may be a concern that competitive port charges for these commodities are vital if these exports are to remain viable.
- the recency of some infrastructure investments. Much of the infrastructure investment in the regional ports that handle most dry bulk cargoes is old and largely depreciated, whereas there has been significant recent investment (including a major deepening project) in the port of Adelaide, through which most non-bulk traffic passes.
- historical pricing patterns influenced by political pressures. The (official) pricing structures currently in place were inherited by Flinders Ports from its predecessor, and have not been greatly changed. Political influences, and in particular pressure to maintain low prices for rural exports, is likely to have been a factor in the formation of these inherited price structures.

Summary of key conclusions

The benchmarking suggests SA port prices are higher than average, but not outside the reasonable range (as inferred from the spread of prices charged at other Australian ports). Prices at publicly owned comparator ports are probably somewhat lower than they should be, and a preliminary assessment suggests that this effect alone may explain most of the observed difference. Additionally, SA ports are on average small relative to the comparator ports, and are therefore unable to benefit to the same extent from economies of scale.

There is no evidence of excessive price increases in SA ports: increases in the formal tariff levels over the period since privatisation have matched closely price movements in the ports of other jurisdictions.

Nor is there any evidence that ‘captive’ dry bulk cargoes are carrying an unreasonable share of the cost burden. In fact, it appears that the price gap between SA ports and non-SA ports is relatively low for these cargoes, which have been identified by ESCOSA as the most vulnerable to abuse of market power.

In summary, the benchmarking results indicate that the combination of market pressures and current regulatory arrangements appears to have been effective in protecting the interests of South Australian port users.

1. INTRODUCTION

1.1 Background

As the South Australian independent industry regulator, the Essential Services Commission of South Australia (ESCOSA) has been responsible for the economic regulation of certain South Australian ports since September 2002. The legislative framework for this regulation is provided through the *Maritime Services (Access) Act 2000* (SA) — the MSA Act. The Act covers the common-user terminals at Port Adelaide, Port Giles, Port Pirie, Port Lincoln, Wallaroo, Thevenard and Ardrossan. These ports, with the exception of Ardrossan, which is managed by Ausbulk Ltd, are privately operated by Flinders Ports Pty Ltd.

Only some of the services regulated under the MSA Act are subject to price regulation. These are defined in s4 of the MSA Act as essential maritime services. They are the services of:

- providing or allowing for access of vessels to a proclaimed port; or
- providing port facilities for loading or unloading vessels at a proclaimed port; or
- providing berths for vessels at a proclaimed port.

Following a review of the commercial environment within which South Australian ports operated in 2004, the Commission determined that a light-handed approach would be the most appropriate form of regulation for these services. The major components of and rationale for this light-handed regime are:

- A port operator is allowed to set its own prices for essential maritime services for a three-year period, from October 2004 to October 2007.

- The operator must post a comprehensive price list for the declared services on its website. The operator must inform ESCOSA of having done so and of the changes made to these prices from time to time.
- The operator and access seekers (port users) are free, and are encouraged by ESCOSA to enter into commercial arrangements covering price and service quality levels. Importantly, price levels can differ from posted prices if both parties agree to this. This may be appropriate in the case where an access seeker is prepared to pay a higher price to utilise a port service that necessitates the operator making an additional investment in capacity (and therefore incurring extra costs).
- There is a threat of re-regulation (that is, of the introduction of tighter, more intrusive regulation) to act as an ongoing incentive against an operator misusing its market power.

1.2 Purpose

Section 9 of the MSA Act requires the Commission to keep maritime services under review to determine whether regulation should continue, and if so whether current forms of regulation are appropriate. The current Ports Price Determination expires on 30 October 2007, and the Commission intends to undertake a Port Pricing and Access Review before that date.

To inform the Commission on whether the access regime applying to the ports complies with certain requirements under clause 2 of the Competition and Infrastructure Reform Agreement (CIRA) entered into by the Council of Australian Governments (COAG) in February 2006, the Commission is seeking to improve its understanding of the pricing behaviour of the managers of regulated ports under the current price regulation regime. The Commission has, as part of its price monitoring role, undertaken limited comparisons of prices charged at South Australian ports and published the outcomes of these comparisons as a series of price monitoring reports. While these reports provide useful data on comparative charges, they are limited in a number of ways:

- They include only a small number of interstate comparator ports.
- They cover only a limited number of commodities (specifically, grain and bulk minerals).
- They do not attempt to explain the observed differences.

This benchmarking study seeks to extend the work undertaken in the monitoring reports:

- The range of interstate ports has been greatly increased, with a total of eleven comparator ports included in the analysis.
- The range of commodities has been extended to include a broader range of dry bulk commodities, liquid bulk cargoes, containers, motor vehicles and livestock.
- A consolidated index has been constructed as a single indicator of how the overall level of prices in SA ports compares with the overall level of prices in interstate ports.

- A similar index is used to track how SA port charges have changed over time compared with changes in prices at interstate ports.
- Separate indicators have been constructed to compare (a) the level of prices in South Australia and interstate ports for the cargoes generally considered to be ‘captive’ (grain and bulk minerals) and (b) the level of prices in South Australia and interstate ports for other cargoes.

In one respect the coverage of this report is slightly more limited than that of the monitoring reports. As with the monitoring reports, this one covers essential maritime services outlined in s4 of the MSA Act. In addition (and also as in the monitoring reports) it covers the two other major costs incurred by port users: towage and pilotage costs. However, it does not include a number of minor, non-regulated charges incurred in visiting a port that are covered by the monitoring report.

For reporting purposes, the charges are broken into two categories: essential maritime services (that is, the services that are currently subject to price regulation by ESCOSA) and non-essential maritime services (pilotage, towage and conservancy).

The omission of these minor charges is unlikely to materially affect any of the comparisons or conclusions from the benchmarking study.

2. METHODOLOGY

2.1 Challenges in port price benchmarking

There are many complex factors affecting the level of comparative port prices; not all of these factors will fall within the control of either ESCOSA or the port service providers.

Some of the important factors affecting the level of port costs are presented in Table 2-1 below. The list of factors is by no means exhaustive. Rather, it aims to highlight the complexities of port benchmarking, and the important considerations in designing a meaningful benchmarking project.

2.2 Approach adopted

To accommodate these challenges, a four tiered approach, shown in FIGURE 2-1, has been adopted, a consideration of overall price levels; a comparison of relative price levels; an assessment of the changes in price levels and the drivers behind these changes; and finally, general conclusions and inferences, which are drawn from the analysis.

FIGURE 2-1: THE FOUR TIERED APPROACH TO THE ANALYSIS

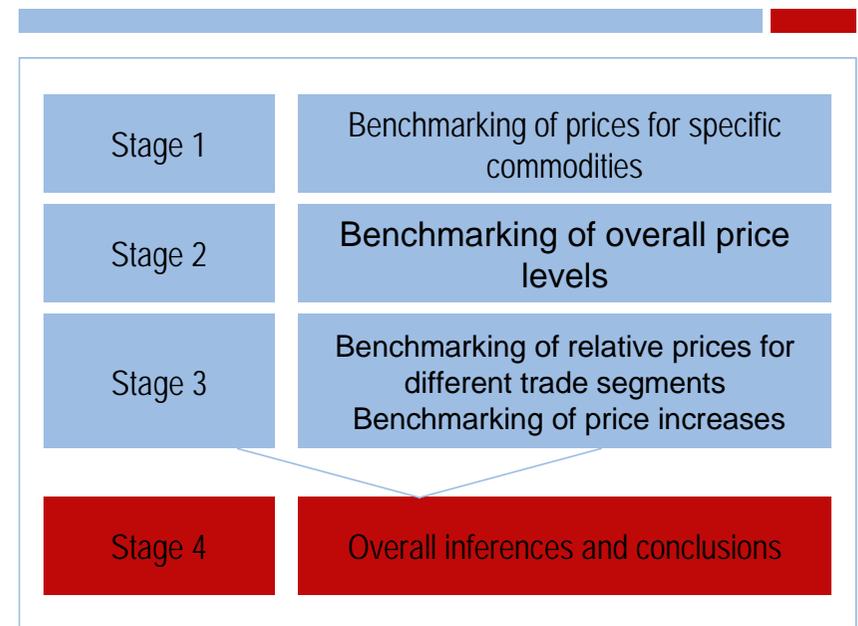


TABLE 2-1: (LARGELY) UNCONTROLLABLE FACTORS AFFECTING THE LEVEL OF PORT COSTS

Category	Factor	Description
(Largely) uncontrollable factors affecting the level of port costs	Location factors	The specific geographical characteristics of a port location exercise an important influence on port costs. The most obvious example is whether the port is sited close to natural deep water, but there are many others, including the proximity to major urban areas.
	Scale factors	It is generally accepted (though surprisingly hard to demonstrate empirically) that there are important economies of scale in ports, and particularly in the provision of the basic infrastructure services that comprise the bulk of the Essential Maritime Services defined by the MSA Act.
	Cargo mix factors	The mix of cargoes handled by the port also has an important influence of port prices. Some cargoes require much more sophisticated berth infrastructure than others.
(Largely) controllable factors affecting the level of port costs	Capacity utilisation	There are high fixed costs involved in the provision of essential maritime services. Port operators make choices about how much capacity to provide in the face of a certain level of demand, and the level of utilisation of major port assets has a very significant impact on port costs.
	Ship size	Port operators also make choices about the size of ship for which they will cater. Catering for larger vessels involves higher port costs, but may provide significant benefits for port users.
Factors affecting the relationship between the overall level of port prices and port costs	Asset valuation policies	Asset valuation practices do not affect the cost of providing the port assets, but they do have a very marked effect on pricing targets. The approaches taken by different ports vary significantly. In the case of the SA ports, a discontinuity was introduced by the sale process, at which time the port assets were transferred at a price that differed significantly from the book value.
	Rates of return	Most publicly owned Australian ports, most of the time, achieve rates of return on assets that are below those that would normally be considered commercially acceptable.

Category	Factor	Description
Factors affecting charges incurred by specific port users	Cost/profit centre structuring	Some models of port pricing — perhaps the best known of which is the UN ESCAP Model Port Tariff, the influence of which is muted but perceptible in the pricing structure inherited by Flinders Ports from South Australian Port Corporation — propose the recovery of certain identifiable costs from specific charges. In practice, there is very little consistency between ports in this regard.
	Cost allocation procedures	Particularly in complex urban ports, a significant share of total costs —commonly up to 50% of total costs — cannot be directly attributed to any particular trade passing through the port. The allocation of these costs to particular users is therefore essentially discretionary. Some ports go about this differently, and many do not do it systematically at all. The choices that are made in this regard by the port operator can significantly influence the prices charged to particular users.
	Price structures	<p>For cargo-based charges, the charging unit is generally common across most ports: the revenue (or freight) tonne for non-unitised cargoes, per TEU for containerised cargo or per unit for cargoes such as vehicles and livestock. But the relationship between charges for different cargo types, even where these may pass across the same wharf, can vary significantly. Specific cargoes may enjoy advantageous rates in a particular port because of specific agreements arrived at with individual shippers but incorporated in the port tariff, or for a number of other reasons.</p> <p>Ship-based charging structures also differ. Sometimes they are very simple (e.g. Melbourne, Geelong), with a flat rate per GT; sometimes they are simple, but vary between locations in the port (e.g. Fremantle). Alternatively they follow a complex profile that reflects certain historical breakpoints and agreements (e.g. Newcastle); sometimes they include an element that reflects the time a vessel spends in port (e.g. Darwin); sometimes they cover the ship for several visits during a defined period (e.g. South Australia).</p>

2.2.1 Stage 1: benchmarking of charges for particular commodity types

The variability of charging structures and the lack of clear correspondence between specific costs and specific charges means that comparing individual elements in a port tariff is either impossible or meaningless.

For example, the Port of Adelaide has a total of three major port charges used to recover the cost of basic infrastructure services: navigation service charge, harbour service charge, and the cargo services charges. In Brisbane by contrast, there is no equivalent to the navigation service charge or the harbour services charge, but there are two charges — harbour dues and wharfage — both based on cargo volume. Mooring in Port Adelaide is incorporated as part of the Harbour Services Charge; in Brisbane it is a separate charge levied by a separate entity.

In its monitoring reports, ESCOSA used a ‘model ship’ approach. This compares port charges by:

1. defining a typical vessel
2. defining a typical cargo load for each trade of interest
3. examining the total costs incurred by that vessel visiting a particular port.

A very similar approach was adopted for the first tier of the analysis, which is most closely related to ESCOSA’s own work in the monitoring reports.

The BTRE also adopts a ‘model ship’ approach in the construction of the Port Interface Cost Index for its *Waterline* publication. The BTRE approach differs from that adopted by ESCOSA in one important respect. While the ESCOSA version of the model ship approach assumes the same volume of cargo is discharged in each of the ports being compared, the

BTRE approach is to use, for each port, the actual average cargo volume discharged and loaded in that port.

A case can be made for the use of either variant, dependant on the purpose of the benchmarking exercise. For the purpose of the current review, we believe that the primary consideration is ensuring that like is compared with like. This argues for the ‘fixed cargo’ approach that has been adopted by ESCOSA in its monitoring reports, and this approach has been adopted for the benchmarking analysis.

2.2.2 Stage 2: benchmarking of overall price levels

The second tier of the analysis involved developing a single overall metric of 2006/07 price levels for the proclaimed South Australian ports as a whole and for the comparator ports.

This would be straightforward if the composition of the trade was the same in each port. But Figure 2-2 below shows clearly that this is not the case when we compare individual ports. Neither is it the case if we consider the South Australian ports as a group, and the non-South Australian ports as a group. The shares of each commodity group in the total South Australian trade, and in the trade though the non-South Australian ports included in the benchmarking study, are shown in Figure 2-2.

It can be seen that there is a considerable difference in the cargo composition between the two groups of ports. In particular, grain, which is a very important part of the total cargo base for SA ports, is a relatively small component of the cargo task outside of SA. The proportion of container cargo in the SA mix is also substantially lower.

FIGURE 2-2: TRADE COMPOSITION BY PORT

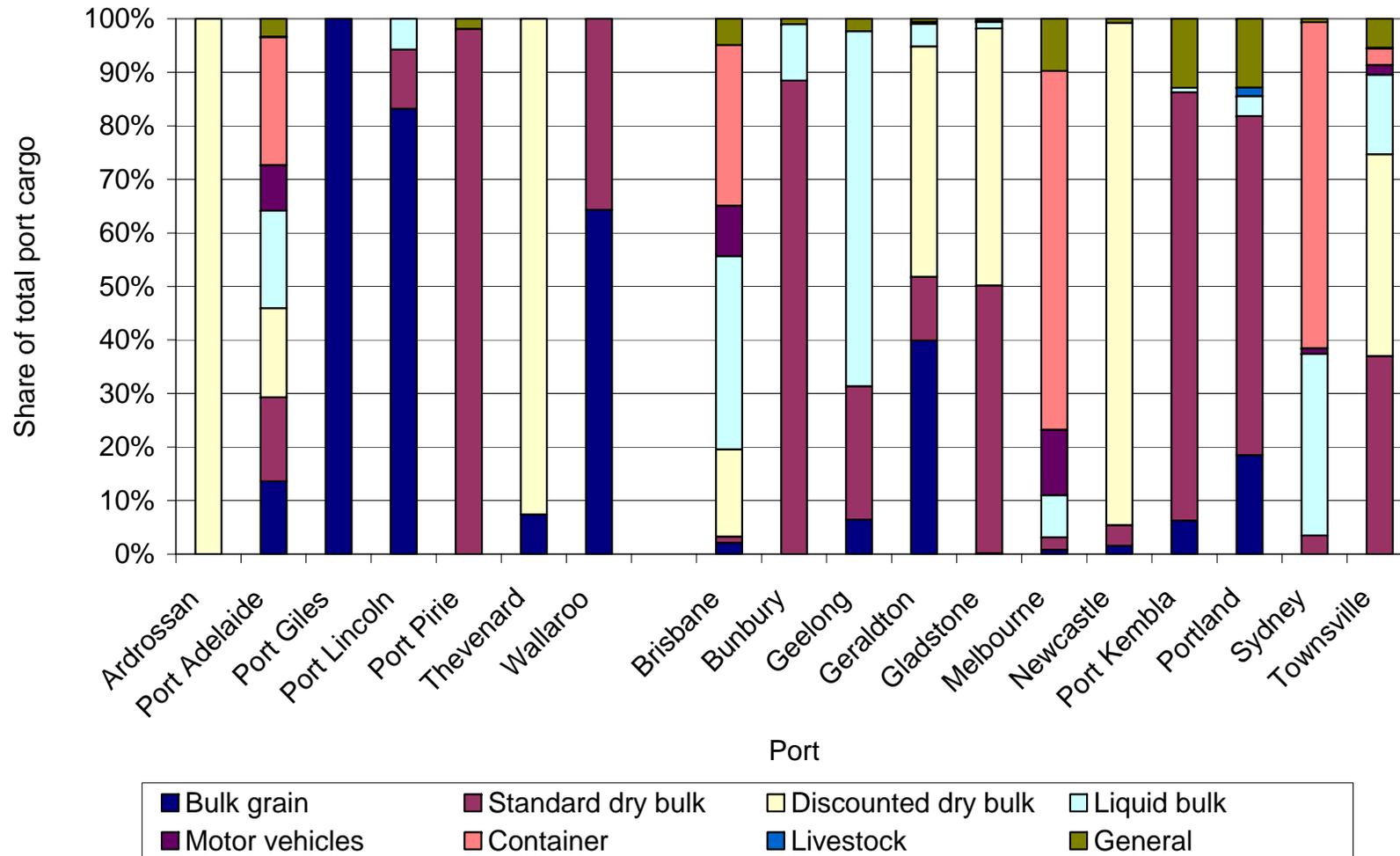


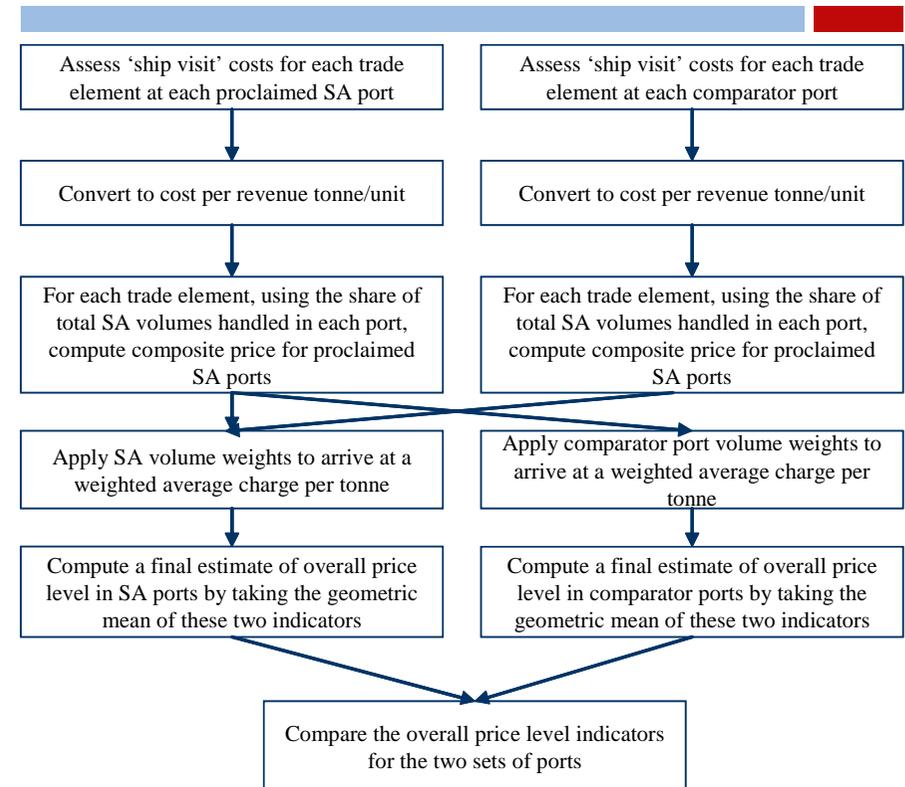
TABLE 2-2: COMMODITY GROUP SHARES IN SA AND NON-SA PORTS

Cargo shares - excluding 'general'	Non-SA Ports	SA Ports
Grain	2.17%	24.11%
Dry bulk-general	25.20%	16.46%
Dry bulk –concession	36.57%	24.85%
Liquid bulk	11.95%	12.82%
Motor vehicle	3.22%	5.70%
Container	20.87%	15.98%
Livestock	0.03%	0.08%

Given that the relationship between the prices charged in South Australian ports and those charged in the comparator ports differs from commodity group to commodity group, the results of the analysis will depend on which set of weights we apply: the South Australian or the non-South Australian.

To ensure a robust estimate, we have adopted the approach that is shown diagrammatically in Figure 2-3. Conceptually, the approach is closely related to the computation of a Fisher ideal index (commonly used in the analysis of time series data).

FIGURE 2-3: ESTIMATION OF INDICATOR OF OVERALL PRICE LEVELS



The principal steps of the procedure are:

- A weighted average cost per revenue tonne was estimated for SA ports, and for non-SA ports, using as weights the relative importance of the different commodity groupings in trade of the non-South Australian ports in the sample. The weights used in this were obtained by simply adding, for each commodity group, the cargo volumes handled in each of the non-South Australian ports.
- This process was then repeated, using as weights the relative importance of the different commodity groups in the trade handled in the South Australian ports.
- The geometric mean of outcomes from these two estimates was taken as a 'central' estimate of relative prices.

The procedure is described mathematically in Appendix A.

This approach uses the construction of the index itself to internalise many of the uncontrollable factors affecting the level of port costs. The influence of the trade mix at the port on the comparison is minimised, as the weights used in the construction of the index take the trade mix into account. Similarly, the influence of a port's decision on how to allocate common costs between trades is minimised, since all relevant prices are included in a single measure.

A relatively common price schedule for essential maritime services is currently in force at the proclaimed ports, and all but one of them (Ardrossan) are managed by Flinders Ports. As a result, we have assumed a single composite index for the South Australian ports: there is little to be gained by producing separate indexes for each individual port, and indeed in our view doing so is likely to obscure rather than clarify the answer to the question of how Flinders Ports' prices, taken as a whole, compare with those at other ports.

2.2.3 Stage 3: Further analysis based on composite indexes

The third tier of the analysis entailed the construction of further composite indexes.

Inter-temporal analysis

This was done by replicating the process described in the preceding subsection using pricing information from 2000/2001. (The weights used in aggregating that data were not adjusted.)

This allowed an assessment to be made of how prices at South Australian ports had moved over the last five years relative to prices in non-South Australian ports.

Segregation of commodity groups

Using the approach outlined previously, it was possible to break the commodity groups into two sets. The gap between SA port charges and the charges levied in other ports was then assessed separately for each of the two sets of commodities.

The first of the two sets consisted of those commodity groups considered to be effectively captive — essentially the dry bulk trades. The second set consisted of all remaining commodities.

Comparing the relationship between prices at SA ports and prices at non-SA ports across these two commodity sets provides an indication of whether Flinders Ports have structured its prices in a way that bears unusually heavily on the more captive trades.

2.2.4 Stage 4: Interpretation of results

The final stage of the process consists of interpreting the results of these comparisons and their implications for an assessment of the effectiveness of current regulatory arrangements.

In principle, it would be possible to undertake detailed econometric analysis to identify the contribution that various environmental factors (such as the scale of port operations) contribute to any observed difference between prices at SA ports and those at non-SA ports. This comparison could then be adjusted to account for these factors. Any remaining difference would then indicate fairly clearly whether current prices are higher or lower than they should be.

In practice, it is difficult to formulate clearly the expected relationship between various attributes of the operating environment and trade composition and port costs — and hence appropriate prices. There is also a range of problems with both the availability and the quality of required data that could not be addressed within the time frame and budget of this project.

The scope of the analysis and interpretation of results is therefore modest. It consists of a largely qualitative assessment of possible reasons for the observed differences, supported where possible by limited quantitative evidence.

The relationship between the 2000/2001 index and the (modified) 2006/2007 index for each individual port provides a broad-based indicator of the overall level of price increase in each port.

The presentation of the results of this analysis will also be accompanied by a qualitative commentary.

3. DATA AND INPUTS

3.1 Commodities

The commodities covered by the ESCOSA monitoring report are limited to bulk grain and mineral exports. However, in order to obtain a greater understanding on the overall level of charges, a more extensive range of commodities that are typical across the comparator ports has been used in this report.

Table 3-1 below shows the commodity classifications used in our analysis.

TABLE 3-1: COMMODITY CLASSIFICATION

Bulk grain
Standard dry bulk
Discounted dry bulk
Liquid bulk
Motor vehicles
Container
Livestock

The commodity groupings specified in Table 3-1 cover approximately 97% by volume of the cargo passing through the selected ports. The remainder of the cargo is non-containerised general cargo. This is a heterogeneous sector for which it is difficult to define a typical ship type and cargo volume. Because these port trades make a relatively minor contribution to overall port trade and revenues, excluding them makes no material difference to the principal conclusions of the analysis.

3.2 Ports included in the comparisons

3.2.1 South Australian ports

All of the South Australian ports proclaimed under the *Maritime Services (Access) Act 2000 (SA)* were included in the analysis. They are: Ardrossan, Port Adelaide, Port Giles, Port Lincoln, Port Pirie, Thevenard and Wallaroo.

3.2.2 Non-South Australian ports

Most of the ports included in the latest ESCOSA monitoring report were included in the analysis. The sole exception is Groote Eylandt, which is at least arguably not managed as a genuine stand-alone port operation.

The other ports included in the monitoring of prices for the provision of essential maritime services are Townsville, Newcastle, Geraldton, Portland, Geelong, Melbourne, Newcastle and Brisbane. Bunbury, Port Kembla, Gladstone and Sydney have been added to this group in this benchmarking study.

Table 3-2 shows the key commodities processed by each port in the study; their respective ownership and the nature of the owning entity.

The locations of the South Australian and non-South Australian ports are shown in the Figure 3-1 and Figure 3-2.

TABLE 3-2: CARGO AND OWNERSHIP SUMMARY

Port	Main Cargoes Handled	Ownership
Ardrossan	Dolomite	Privately owned (Ausbulk Ltd)
Port Adelaide	Containers, petroleum and gas, limestone, grain	Privately owned, Flinders Ports (FP)
Port Giles	Grain	FP
Port Lincoln	Grain	FP
Port Pirie	Concentrates	FP
Thevenard	Gypsum, salt	FP
Wallaroo	Grain	FP
Brisbane	Crude oil, containers, coal	GTE
Bunbury	Alumina, caustic soda, mineral sands	GTE
Geelong	Crude oil and petroleum products, woodchips, grain	Privately owned (Toll Ports)
Geraldton	Iron ore, mineral sands, grain	GTE
Gladstone	Coal, bauxite, alumina	GTE
Melbourne	Containers, cars, crude oil petroleum products	GTE
Newcastle	Coal, grain	GTE
Port Kembla	Coal, iron and steel, grain	GTE
Portland	Woodchips, alumina, grain	Private
Sydney	Containers, crude oil, refined oil	GTE
Townsville	Nickel ore, sugar, crude oil	GTE

FIGURE 3-1: LOCATION OF SOUTH AUSTRALIAN PORTS IN THE BENCHMARKING ANALYSIS

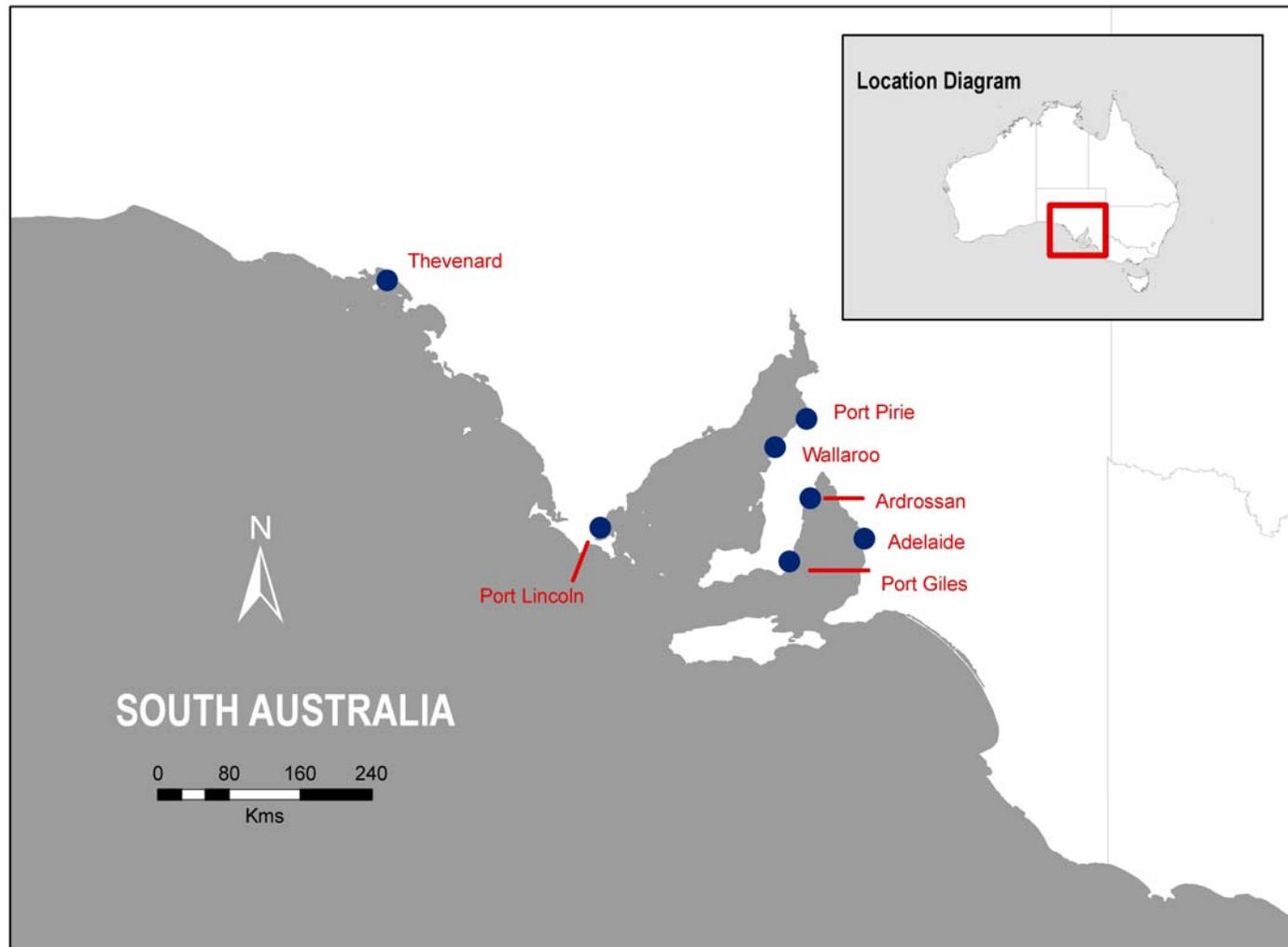
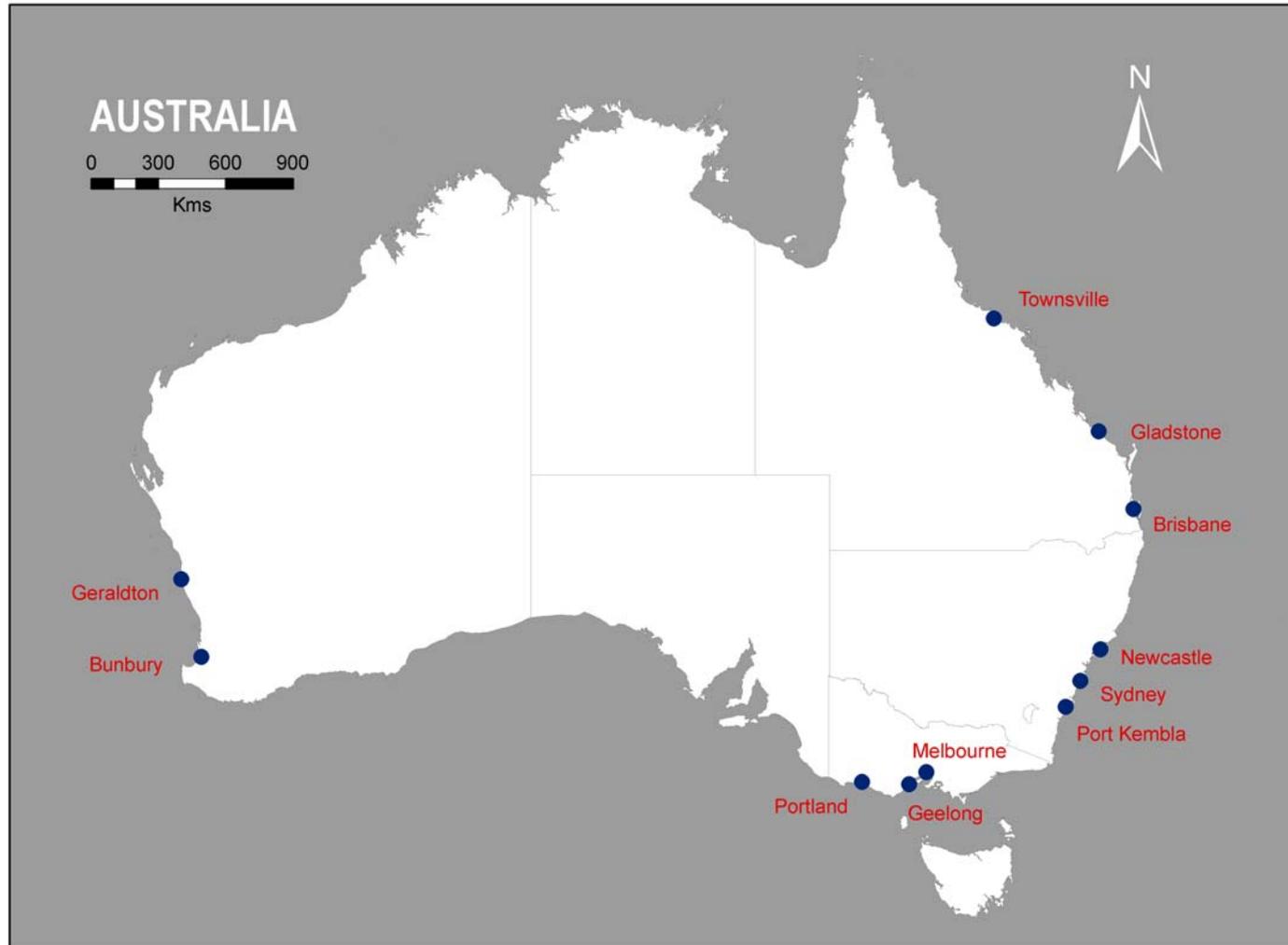


FIGURE 3-2: LOCATION OF NON-SOUTH AUSTRALIAN PORTS IN THE BENCHMARKING ANALYSIS



3.3 Data collection process

The data needs of a study of this kind are extensive. Some elements are readily available in the public domain. Others are publicly available, but only through direct application to service providers. Still others are commercially confidential. Moreover, it is rare for all the data necessary to make a realistic assessment of the total costs of a ship visit to be available from a single source.

Given the relatively short timeframe of this benchmarking study, it is inevitable that there will be some imperfections in the input data. However, a number of strategies have been employed to ensure that the quality of the data used is as good as it could be.

3.3.1 Direct approaches to port authorities and service providers

Our preferred source of data is direct enquiry of port operators and service providers.

A survey requesting the information needed for this study was prepared and distributed to all comparator ports (in accordance with ESCOSA procedures, we did not make direct contact with SA ports). This was later followed up by telephone. However, past experience with similar studies suggested that response to this survey would be very limited within the timeframe required of this study. This proved to be the case; only one complete response to the survey was obtained. Several other ports did provide partial verbal responses by telephone.

Towage service providers were also contacted directly and asked to provide rate schedules for towage services. Responses to this request varied, but ultimately we were able to obtain current towage schedules for all but one comparator port and for all SA ports (with assistance from ESCOSA in the case of Wallaroo, Port Adelaide and Thevenard).

3.3.2 Public domain sources

Much of the most important information (the basic infrastructure charges for the port operators) can be obtained from public domain sources.

The primary public domain information sources were:

- Port websites and annual reports
- Adsteam websites and newsletters
- BTRE's Waterline series
- ESCOSA Monitoring Reports
- Oceania Maritime Services Pty Limited Newsletters.

These sources were also used for information on container stevedoring performance and the loading rates achievable at bulk handling facilities.

See Appendix C for a complete list of the public domain documents.

3.3.3 Internal databases

Datasets such as schedules for private service providers, resource utilisation levels, and berth hours were not so readily available. Our internal databases and ships' agents directories were used to backfill gaps left by the first two sources of information.

3.3.4 South Australian Ports

The datasets relating to the South-Australian ports were provided by ESCOSA.

Using these four sources, it was possible to assemble an almost complete data set on relevant charges, and a reasonable coverage of other relevant operating parameters. A few minor datasets were incomplete. For example, the typical number of tugs for different vessels types was not available for all ports — we have used an estimate based on industry experience for some ports. For these datasets, reasonable estimates based on industry knowledge have been used to fill any incomplete inputs.

These gaps do not significantly change the overall outcomes of the benchmarking analysis.

3.4 Charges included

3.4.1 Essential maritime service charges (EMS charges)

ESCOSA is responsible for the economic regulation of certain port service charges — essential maritime services (EMS charges).

Section 4 of the *Maritime Services (Access) Act 2000* (SA) defines essential maritime services as:

1. providing or allowing for access of vessels to a proclaimed port; or
2. providing port facilities for loading or unloading vessels at a proclaimed port; or
3. providing berths for vessels at a proclaimed port

Although the correspondence is not perfect, it appears to be generally accepted that the charges used to recover the costs of providing these services are:

- Navigation services charge
- Harbour services charge
- Cargo services charge.

As far as possible, charges levied by other port authorities have been assigned to one or other of these categories. But it should be borne in mind that ports do not use a common classification for their port charges, and the assignment of a particular charge involved a degree of subjective judgement. We have used the following guidelines on what charges should be assigned to which category.

Navigation services charges

Included in this category are charges levied on a ship on entry to port. They are generally regarded as a charge for the right to enter the port and the provision of navigational aids, maritime access channels and port traffic control.

Typically such charges vary according to the size of the vessel measured in gross registered tons. Usually these charges do not vary with the time the ship spends in port.

Harbour services charges

Included in this category are charges that are levied against the ship when it is alongside. They may take the form of a flat charge per hour a berth is occupied by the ship, or they may take the size of the vessel as well as the duration of berth occupancy into account.

TABLE 3-3: OVERVIEW OF ESSENTIAL MARITIME SERVICES IN COMPARATOR PORTS

Port	Navigation charges			Harbour services				Wharf charges					
	Navigation Services	Tonnage	Deep vessel surcharge	Conservancy	Harbour Services	Berthage	Mooring	Cargo Service	Harbour improvement due	Port Infrastructure Charge	Wharfage	Harbour dues (cargo based)	Facility hire/Site occupancy
Adelaide	x				x			x					
Ardrossan	x				x			x					
Port Giles	x				x			x					
Port Lincoln	x				x			x					
Port Pirie	x				x			x					
Thevenard	x				x			x					
Wallaroo	x				x			x					
Brisbane				x		x	x				x	x	
Bunbury	x					x	x			x			
Geelong	x		x			x	x						x
Geraldton		x					x		x		x		
Gladstone				x		x	x					x	
Melbourne		x				x	x				x		
Newcastle		x					x				x		x
Port Kembla		x					x				x		x
Portland		x				x	x				x		
Sydney	x						x				x		x
Townsville		x					x				x		

Cargo services charges

Included in this category are charges that are levied on the basis of the volume of cargo loaded or discharged in the port. In addition, fees charged to stevedores for the temporary occupancy of the land behind the berth are included in this category.

Not all of these charges apply to every port. Table 3-3 above presents a matrix of essential maritime service charges in each of the comparator ports.

3.4.2 Other included maritime services (non-EMS charges)

Although ESCOSA does not have any direct input on the magnitude of maritime charges outside of the essential maritime services outlined above, the project brief specified that the benchmarking is to cover all port charges faced by users. This was a recognition by the Commission that there are many complex factors that must be taken into account in benchmarking port prices — some of which are outside the Commission's control (see Section 2).

The other maritime services (non-EMS charges) included in this analysis were limited to pilotage, towage and conservancy. There is a range of other minor maritime services provided in each port, but collectively these constitute only a small fraction of the total cost of a port call. Omission of these minor charges from the analysis is most unlikely to materially affect any of the findings or conclusions of the analysis.

3.5 Vessel specifications

For each of the commodity classes included in the analysis, a model ship was defined, and a reasonable assumption made on the quantity of cargo that would be worked on that vessel. Following the lead of the ESCOSA monitoring reports, in the case of grain two model vessels were defined: a Handymax vessel and a Panamax vessel. This brought the total number of model ships analysed to eight.

The full specifications of all model vessels are presented in full in Table 3-4.

Grain-Handymax and Panamax

The specifications for the two grain vessels are based on the model ship used in the comparison of port prices in grain ports in ESCOSA monitoring reports.

Dry bulk — concession

The dry bulk (concession) vessel is modelled on the ship specifications used in the ESCOSA monitoring reports. It has the following characteristics: 17,900GT, 23,500DWT, a draught of 9.25m, its length is 168m and has an assumed load of 20,000 tonnes.

Dry bulk — general

The dry bulk (general) vessel is virtually identical to the grain Handymax vessel.

TABLE 3-4: SHIP TYPE ASSUMPTIONS USED IN THE ANALYSIS

Specification	Grain-Handymax	Grain-Panamax	Dry Bulk- general	Dry Bulk - concession	Liquid bulk	Motor vehicle	Container	Livestock
GT	28,500	30,300	28,500	17,900	30,000	42,215.5	37,394	24,731
NT	20,000	22,000	20,000	12,700	12,379		15,644	7,419
DWT	45,000	55,000	45,000	23,500	47,030	14,840.75	46,116	14,823
LOA	185	190	185	168	183	178.625	225	202
Summer draught	11.5	13	11.5	10	12.37	8.46375	12	8.53
Actual draught	11.25	12	11.25	9.25	12	8	11	8
Cargo type	Bulk grain	Bulk grain	Standard dry bulk	Discounted dry bulk	Liquid bulk	Motor vehicle	Container	Sheep
Cargo worked	40,000	48,000	40,000	20,000	40,000	2,500	740	40,000
Cargo unit	tonne	tonne	tonne	tonne	kl	no.	TEU	head
Default handling rates	500	500	500	500	600	200	15	500
Non working time (hrs)	6	6	6	6	6	2	2	6

Liquid bulk carrier

The liquid bulk carrier's gross tonnage is based on the modal value of ships calling at the oil berth in Port Adelaide — its other dimensions are based on estimations using samples from a subscription on-line database maintained by Clarkson shipping.

Motor vehicle carrier

The motor vehicle carrier specifications are based on a sample of car carriers visiting the Port of Adelaide. The number of cars assumed to be discharged or loaded was based on inquiries made of industry participants on a 'reasonable' assumption for a car carrier of these dimensions.

Containership

The containership specification is based on the larger of the two model ships used by the Bureau of Transport and Regional Economics (BTRE) in its Waterline series as 'representative'. BTRE defined the gross tonnage of the model vessel. The other dimensions have been assigned by using comparators from the subscription on-line database maintained by Containerisation International.

The assumed container exchange is 740TEU — this is based on the average of the five major Australian ports in June 2006.

Livestock carrier

The livestock carrier is based on the actual dimensions of 'Danny F', a livestock carrier with a long history of operation in the Australian trade. On the basis of industry inquiries, it has an assumed load of 40,000 head of sheep.

3.6 Assumptions and limitations

It was possible to source data on most of the factors needed to undertake the benchmarking from reliable sources. However, in some instances data gaps have been filled by assumption.

- Only limited information on the number of tugs used for each vessel type in each port could be obtained. On the basis of industry inquiries and an inspection of port operation manuals where these contained relevant information, a default assumption of two tugs in, two tugs out was made for all model ships. This assumption was applied whenever more specific information was not available
- In the absence of replies to the survey questionnaire, little hard data was available on typical times at berth. The exception to this is for container vessels, where information published by BTRE filled the gap. Otherwise, bulk cargo loading rates were normally estimated as 90% of the rated capacity of the relevant bulk loading facility where this information was available. Elsewhere, a default assumption of 500 tonnes per hour was made. For liquid bulk vessels, an average discharge rate of 600tonnes/hour was used, and for car carriers a working rate of 200 vehicles per hour was assumed. Livestock carriers were assumed to load at a rate of 500 sheep per hour.
- Where we were unable to obtain a full schedule containing current (2006/07) mooring charges, but had access to 2000/01 and 2006/07 information from BTRE's Waterline publication on mooring charges paid by specific ships, current schedule charges were calculated by scaling the 2000/01 schedule charges by the percentage change (between 2006/07 and 2000/01) implied by BTRE's Waterline publication.

- In the case of Port Kembla, no current towage schedule could be obtained. It was assumed that towage charges in that port had increased over the 2000/01-2006/07 period by a percentage equal to the average percentage increase observed in other ports.

Perhaps the biggest single limitation of the analysis is that it is based entirely on formally announced schedules of charges, and does not take into account privately negotiated discounts from these rates. However, as this information is, almost by definition, commercially confidential, it is not possible to obtain reliable information on discounts offered across the wide range of ports required for a satisfactory benchmarking process. Under these circumstances it is better to rely entirely on formal tariffs than to attempt to incorporate information on discounting that is fragmentary and uncertain.

4. SHIP VISIT SUMMARY

4.1 Grain

4.1.1 Handymax Vessels

Grain is a significant commodity in six of the eleven comparator ports.

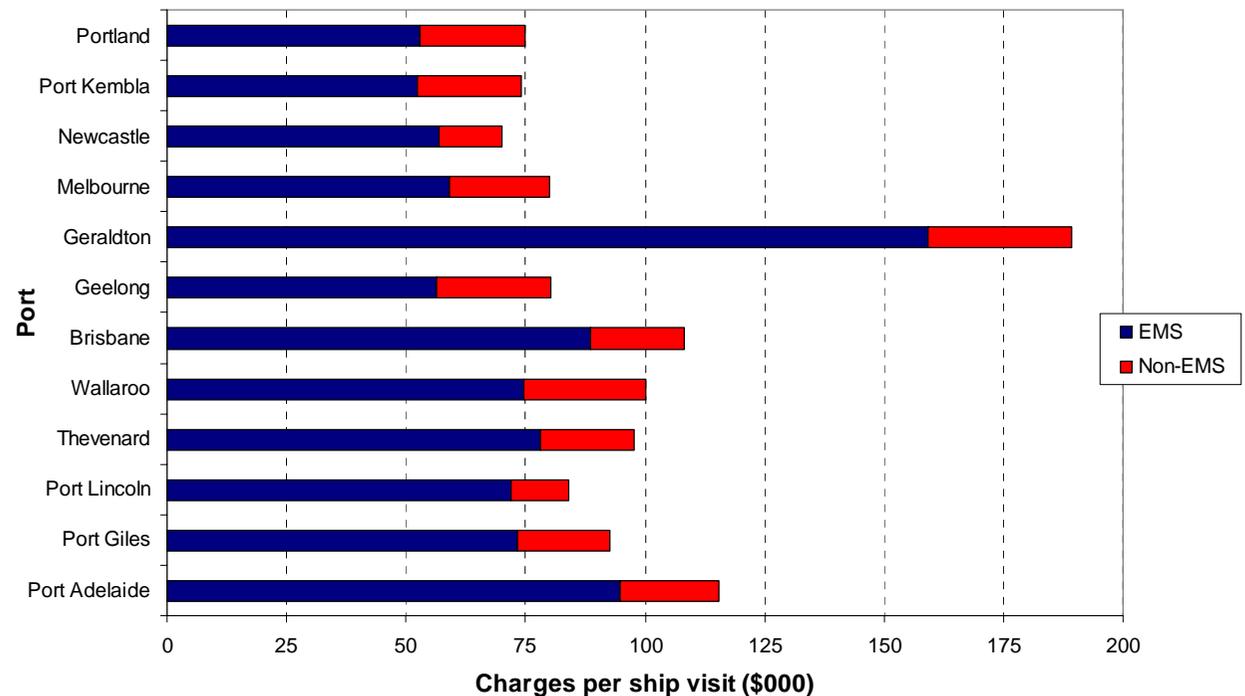
The charges that would be incurred by the model Handymax grain vessel in SA regional ports are in the range \$72,000 to \$78,000; the difference between the ports is due entirely to the effect of differing shiploading speeds on the time spent at berth.

Figure 4-1 shows that costs are higher in Port Adelaide than in the regional SA ports because grain vessels are subject to the channel levy, introduced to fund the recent channel deepening project. This is a cargo-based charge levied on specific commodities irrespective of the size of the vessel on which the cargo is carried.

Total charges for the SA ports fall in the higher end of the observed range. Total charges for Newcastle, Port Kembla, Portland, Melbourne and Geelong are lower than at any of the SA ports.

On the other hand, total charges at Geraldton significantly exceed those at any SA port, while Brisbane is more expensive than any of the regional ports of SA. These comments remain true if only charges for the provision of EMS are considered.

FIGURE 4-1 GRAIN VESSEL (HANDYMAX) VISIT COSTS TOTAL



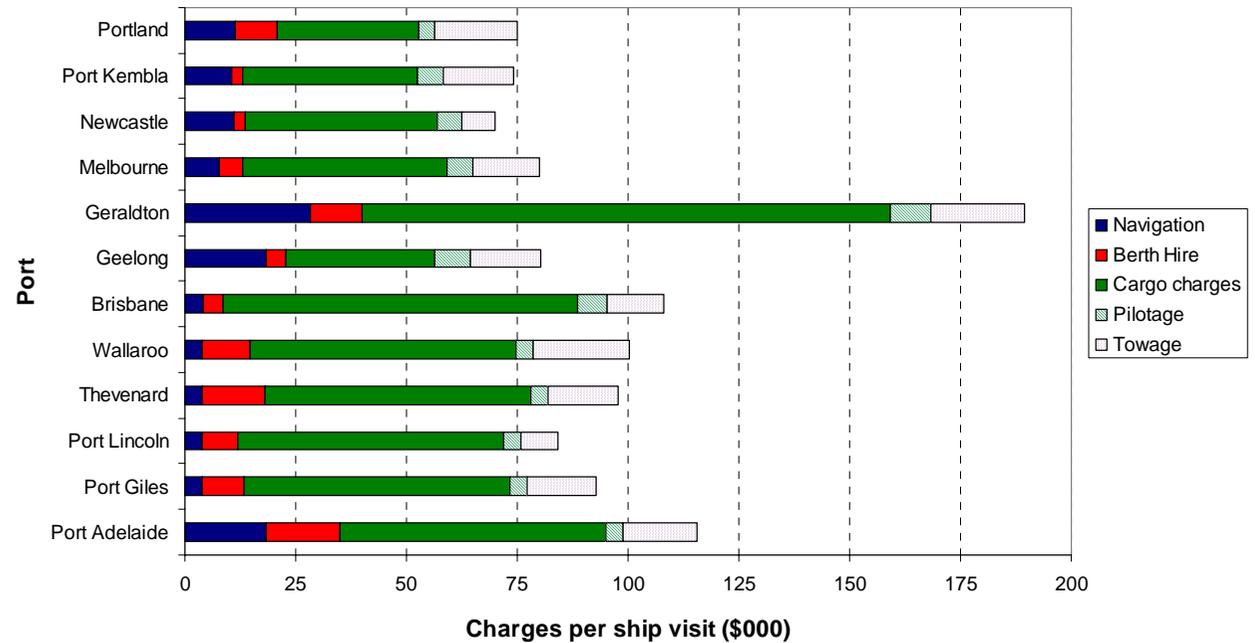
The more detailed presentation of charges provides some insight into the breakdown of these costs.

The high charges at the port of Geraldton reflect recent price increases and additional tariff items put in place to fund the significant deepening works recently undertaken in that port. This is compounded further by the relatively high cost of towage in that port.

Towards the other end of the spectrum, overall costs in Geelong are low despite relatively high navigation fees paid to the Victorian Regional Channels Authority by users of the port. This is largely due to the exceptionally low level of cargo charges for grain at the main grain terminal in that port. This facility is owned by the grain export terminal operator, Graincorp. It is possible that some of the costs of berth provision and maintenance are recovered from other charges levied in the terminal (in particular, from the shipping charge).

The lowest total charges are in Newcastle, where low towage costs consolidate an advantage that stems from a very low specific commodity rate for grain.

FIGURE 4-2 GRAIN VESSEL (HANDYMAX) VISIT COSTS DETAIL



4.1.2 Panamax Vessels

Figure 4-3 shows a comparison between SA ports and the same set of comparator ports for slightly larger vessels falling at the bottom end of the Panamax size range.

The comparison for these larger vessels is very similar to that for Handymax vessels. Geraldton remains by far the most expensive port for grain in the sample, with total charges in excess of \$220,000. This is almost \$90,000 higher than the EMS charges only and total charges prevailing at Port Adelaide. As noted previously, the charges incurred by grain vessels in both of these ports include specific levies or charges introduced to meet the costs associated with recent improvements to maritime access.

Brisbane, at a total cost per visit of around \$120,000, is approximately 10% more expensive than the SA regional ports, which range around \$110,000. Brisbane is roughly comparable in overall costs, but the EMS component of the total cost is larger.

FIGURE 4-3 GRAIN VESSEL (PANAMAX) VISIT COSTS TOTAL

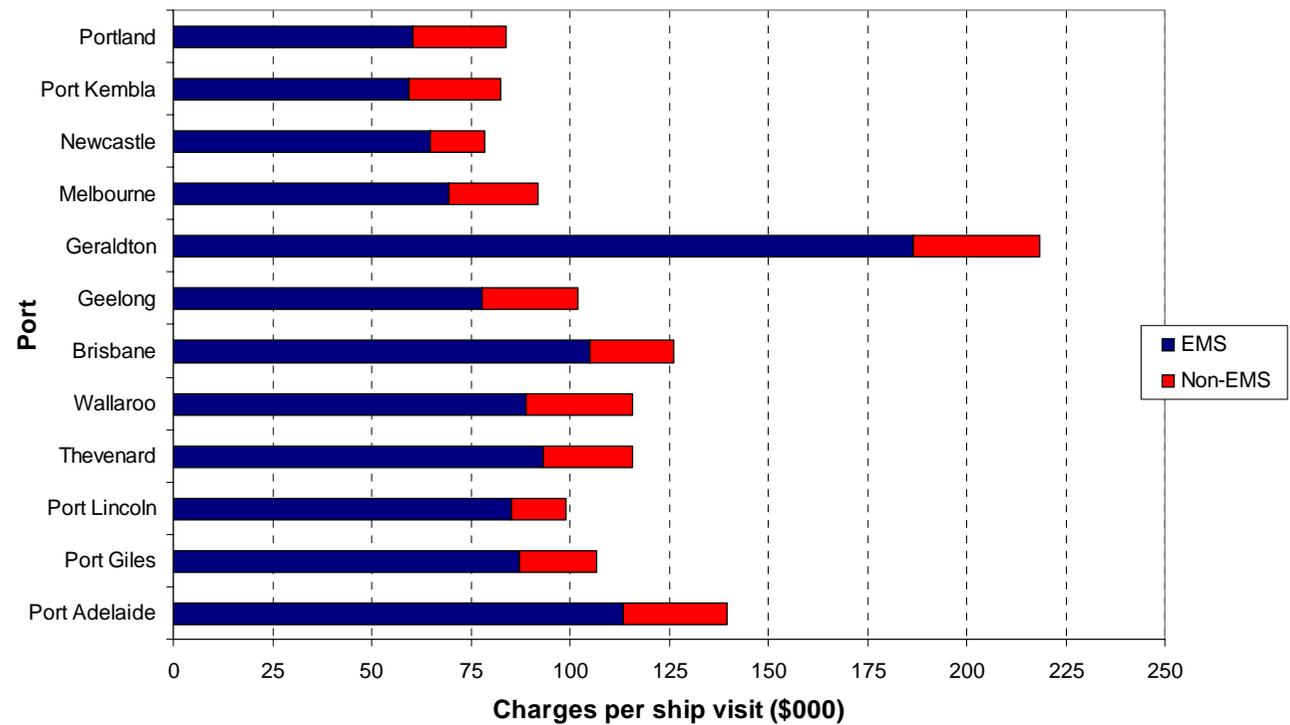
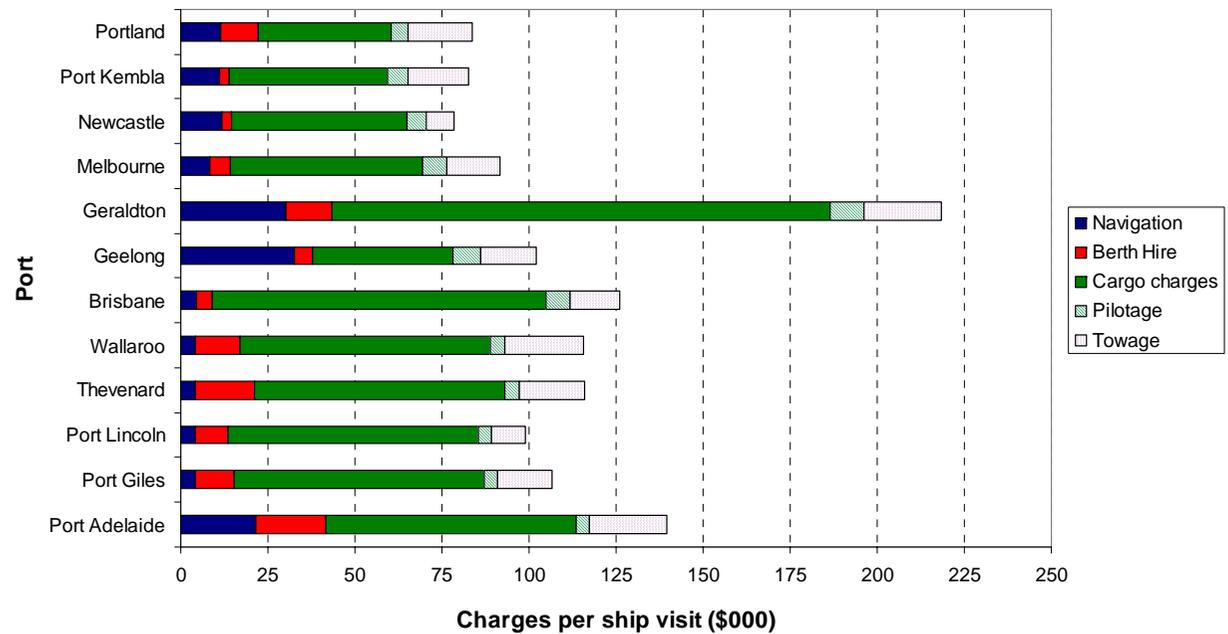


Figure 4-4 provides a more detailed breakdown of the various cost elements for the Panamax model vessel.

The dominant role of cargo (wharf) charges in establishing the relative cost of using each port can be readily seen from the figure. In Geraldton, a standard shipper charge of \$0.94 per tonne of grain cargo has now been supplemented by a Port Enhancement Charge of \$2.04 per tonne. This brings the total cargo-based charge to almost \$3/tonne. This stands in contrast to grain at Port Kembla, which attracts a wharfage charge of \$0.673 per tonne.

At \$1.50 per tonne, the Cargo Service Charge for grain within the South Australian port system lies comfortably within these two extremes. In the case of Port Adelaide, the Channel Fee adds \$0.36 per tonne to all grain shipped, giving a total cost of \$1.86 per tonne.

FIGURE 4-4 GRAIN VESSEL (PANAMAX) VISIT COSTS DETAIL



4.2 Dry Bulk - General

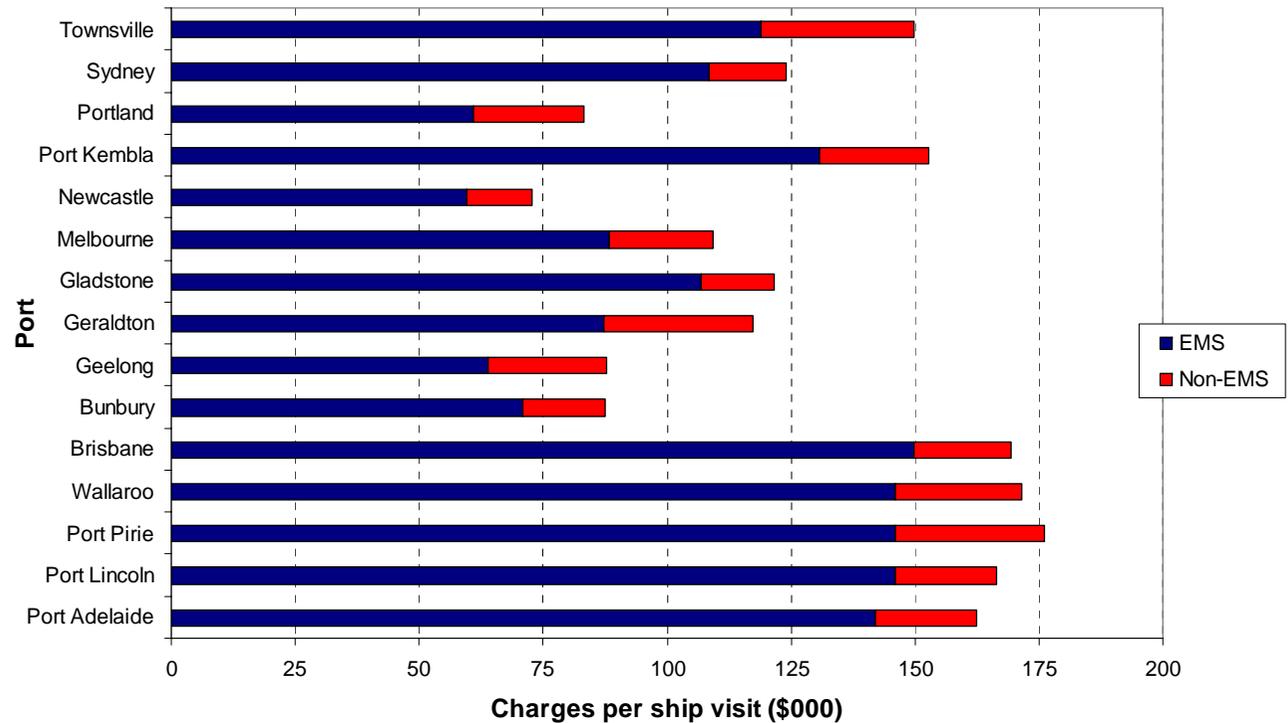
The general dry bulk vessel classification covers a wide range of commodities including (but not limited to) bauxite, alumina, cement, fertiliser, woodchip, coke, iron ore, copper ore, limestone and sugar. Such coverage implies that all the eleven comparator and most of the SA ports handle some cargoes that fall within this grouping.

Figure 4-5 shows that the four SA ports (Port Adelaide, Port Lincoln, Port Pirie, Wallaroo) and Brisbane have the highest EMS charges — in the range of \$140,000 to \$150,000 per dry bulk vessel visit. This is approximately 11% and 27% higher than the EMS charges at Port Kembla and Townsville, respectively.

Newcastle, Portland and Geelong are the cheapest ports for cargoes in this group, with EMS charges of around \$60,000 per dry bulk vessel visit.

These relativities are largely true also for total charges.

FIGURE 4-5 GENERAL DRY BULK VESSEL VISIT COSTS TOTAL



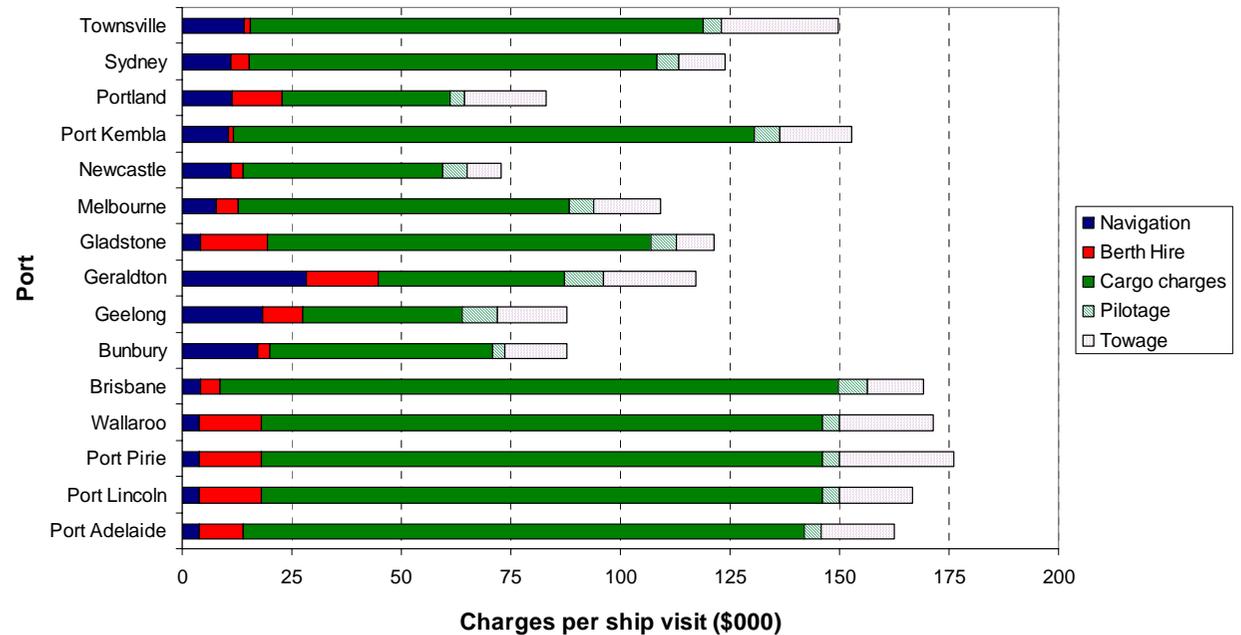
The composition of detailed vessel costs displayed in Figure 4-6 clearly demonstrates that cargo charges are the key parameter driving total dry bulk vessel visit charges at all the SA and non-SA comparator ports. An average of 74% of total charges are attributable to these charges across the four SA ports. This compares with an average of 64% across the comparator ports.

The estimated \$128,000 wharfage charge (using a model vessel carrying 40,000 tonnes of cargo) at the SA ports wholly reflects the cargo services charge, where general dry bulk is charged at \$3.20 per tonne. This contrasts to the opposite end of the spectrum where Newcastle port levies a rate of \$0.80 per tonne to general dry bulk cargo.

Berth hire charges for the SA ports are higher than most comparable non-SA ports.

SA ports have a lower level of navigation service costs (\$3,900 per vessel) relative to the comparator set, while towage charges across the SA ports are broadly comparable with those recorded elsewhere.

FIGURE 4-6 GENERAL DRY BULK VESSEL VISIT COSTS TOTAL



4.3 Dry Bulk - Concession

Many ports have some specific commodity rates — set lower than the general rate for dry bulk freight — for certain bulk commodities. The cargoes covered by these reduced rates are referred to in this report as concessional dry bulk cargoes

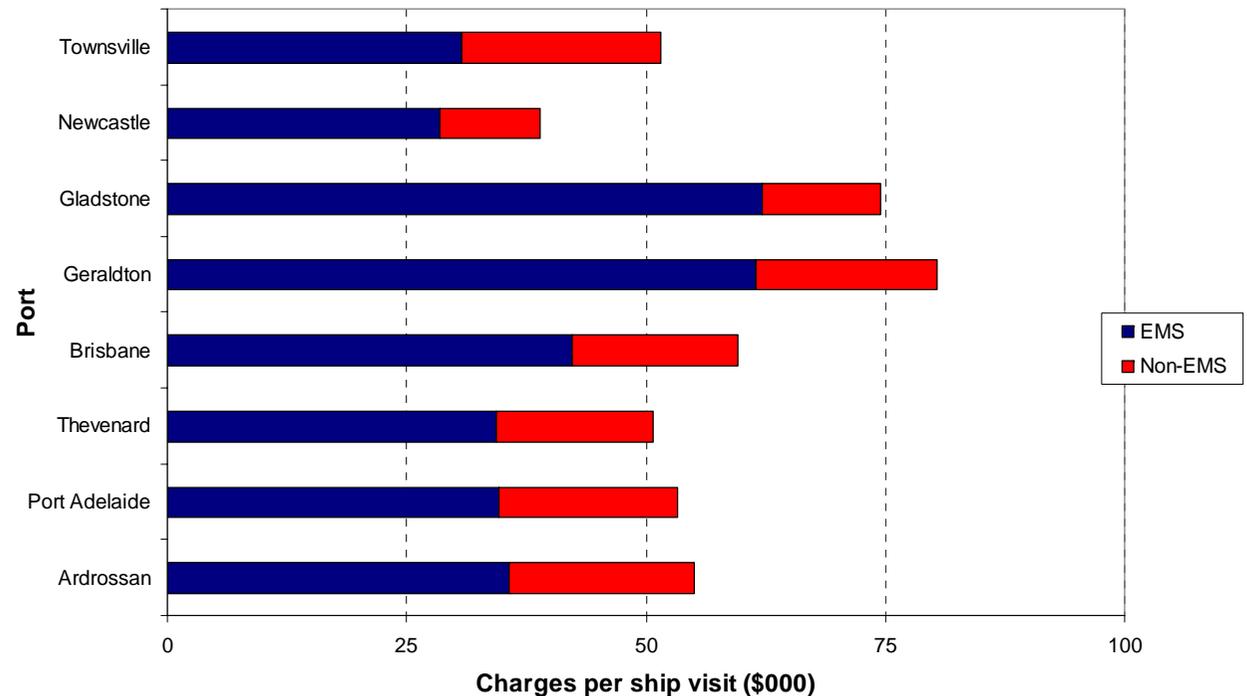
The specific commodities that are classified as concession dry bulk cargoes vary from port to port. Within the set of ports used for this analysis, these include coal, mineral sands, limestone, dolomite, gypsum, nickel ore, gypsum and salt. Port Adelaide accommodates vessels carrying limestone, Thevenard handles gypsum and salt, while Ardrossan moves dolomite.

Figure 4-7 shows that the three SA ports sit around the middle of sample range, with EMS only charges of around \$35,000 per vessel visit. This is moderately higher than EMS charges prevailing at Townsville and Newcastle – averaging approximately \$30,000 per vessel visit.

Geraldton and Gladstone ports have the highest charges on both an EMS only and total cost basis.

The high cost at Geraldton reflects the impact of the recently introduced port enhancement charge, while high harbour dues are the driving force at Gladstone.

FIGURE 4-7 CONCESSIONAL DRY BULK VESSEL VISIT COSTS TOTAL

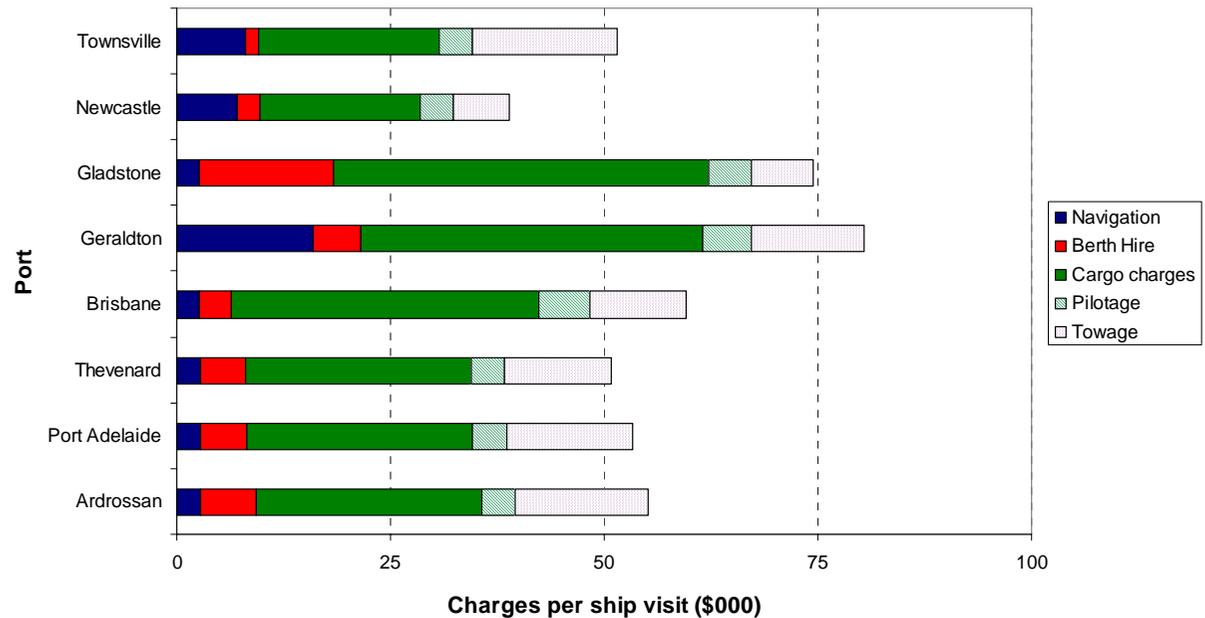


The composition of detailed vessel costs displayed in Figure 4-8 indicates that while cargo charges are important in explaining the trends in total visit costs for vessels carrying concessional dry bulk products, they do not appear to be as significant as is the case for grains and general dry bulk cargo vessels. This is due to the fact that the discriminatory pricing practices adopted by ports (such as offering price discounts to certain commodities in a bid to stimulate additional port trade) are more effectively implemented via a specific cargo or wharfage-based charge, rather than a ship-based charge.

Berth hire and navigation charges play a notable role in the overall cost structures at Gladstone and Geraldton, respectively. This is not the case for the SA ports.

The towage charges at Ardrossan, Port Adelaide and Thevenard are broadly in line with those at Geraldton and Brisbane. Townsville has the highest towage charges (around \$17,000 per vessel), while Newcastle has the lowest towage charges (approximately \$6,500).

FIGURE 4-8 CONCESSIONAL DRY BULK VESSEL VISIT COSTS DETAIL



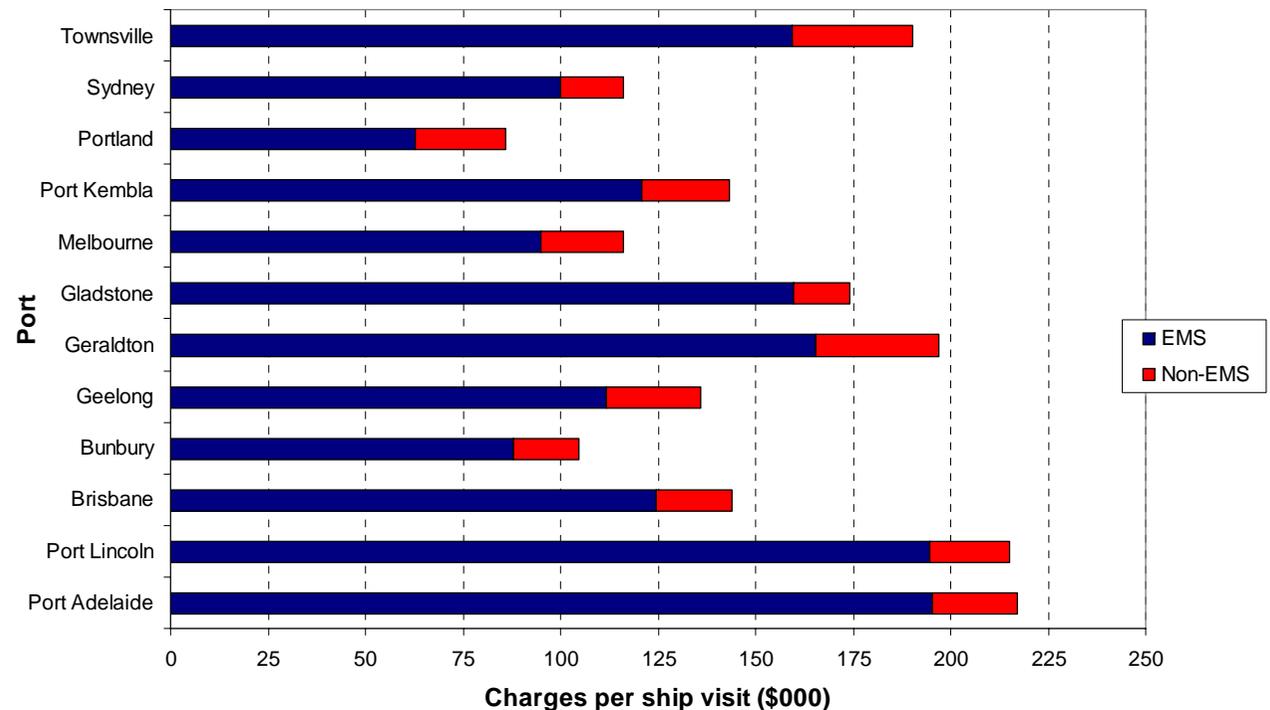
4.4 Liquid Bulk

Port Adelaide and Port Lincoln are the most expensive liquid bulk ports, with EMS charges of approximately \$195,000 per ship visit (Figure 4-9). This is 18% - 26% higher than current EMS charges prevailing at a second group of ports covering Geraldton, Gladstone and Townsville. However, on a total charges basis the SA ports are 10% - 17% higher than this second group of ports.

The main driver of charges at Port Adelaide and Port Lincoln is the cargo service charge. At a rate of \$4.44 per tonne, the cargo services charge applicable to a model liquid bulk vessel (carrying 40,000 kilolitres) is around \$178,000.

At the other end of the spectrum, vessel total liquid bulk vessel visit charges for Portland, Bunbury, Melbourne and Sydney range between \$86,000 and \$116,000. At Portland, the wharfage charge for liquid bulk is \$0.96 per tonne — or 22% of the rate charge in SA ports. Similarly, liquid bulk wharfage charges at Melbourne and Sydney are \$1.52 and \$1.60 per tonne respectively.

FIGURE 4-9 LIQUID BULK VESSEL VISIT COSTS TOTAL

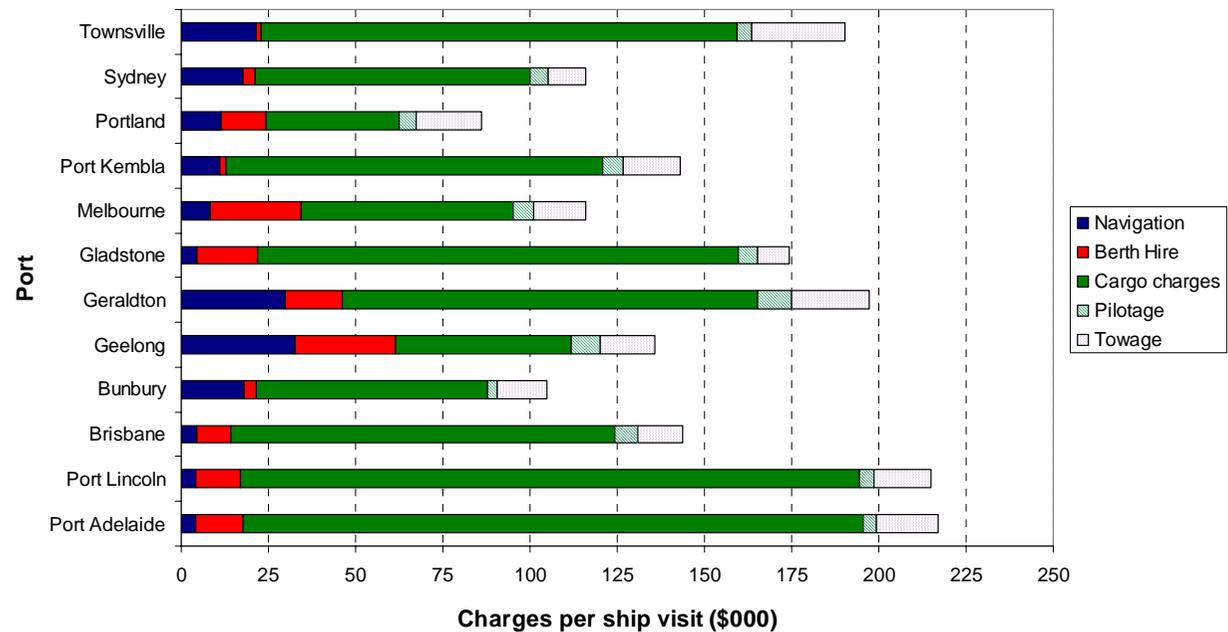


The composition of vessel costs displayed in Figure 4-10 clearly shows the cargo charges (which include SA’s cargo services charges) are the key parameter determining total charges at Port Adelaide and Port Lincoln. Over 75% of total charges are attributable to the wharfage charge. A similar situation occurs at Gladstone and Townsville, where wharfage represents 72% and 74% of total charges, respectively.

This compares with the ports at Portland, Bunbury, Melbourne, Geelong and Geraldton which tend to have a higher proportion of their total charges recovered from navigation and/or berth hire than the relevant SA ports.

For towage and pilotage costs, the differences between the SA and non-SA ports are not significant.

FIGURE 4-10 LIQUID BULK VESSEL VISIT COSTS DETAIL



4.5 Motor Vehicles

Unlike the grain, non-grain dry bulk and liquid bulk categories, there are only a handful of ports handling substantial volumes of motor vehicles. Port Adelaide is the only SA port accommodating motor vehicle cargoes. EMS only charges at Port Adelaide are approximately \$85,000 per each car-carrier visit. This is markedly higher than \$50,000 and \$30,000 respectively per visit at Melbourne and Sydney ports. Townsville has the lowest EMS charges at just over \$25,000 per visit. Notably, on a total charges basis Townsville is more expensive than Sydney and roughly equal to Melbourne. This is because non-EMS (tonnage, pilotage and conservancy costs) charges at Townsville are considerably higher than at Sydney, Melbourne (and Brisbane and Port Adelaide for that matter).

It is worth noting that the motor vehicle shipping operations at Sydney Ports are expected to cease shortly, with these operations being relocated to a new facility at Port Kembla.

FIGURE 4-11 MOTOR VEHICLE VESSEL VISIT COSTS TOTAL

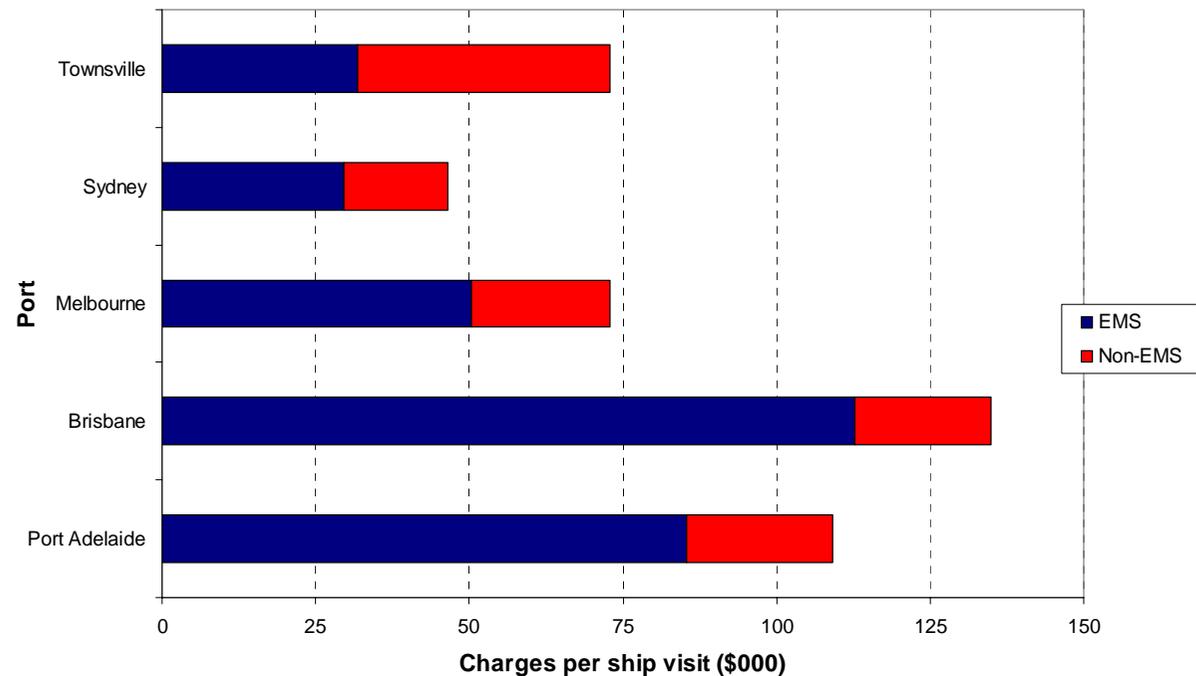


Figure 4-12 shows that the contribution of cargo charges to total visit charges is variable across ports.

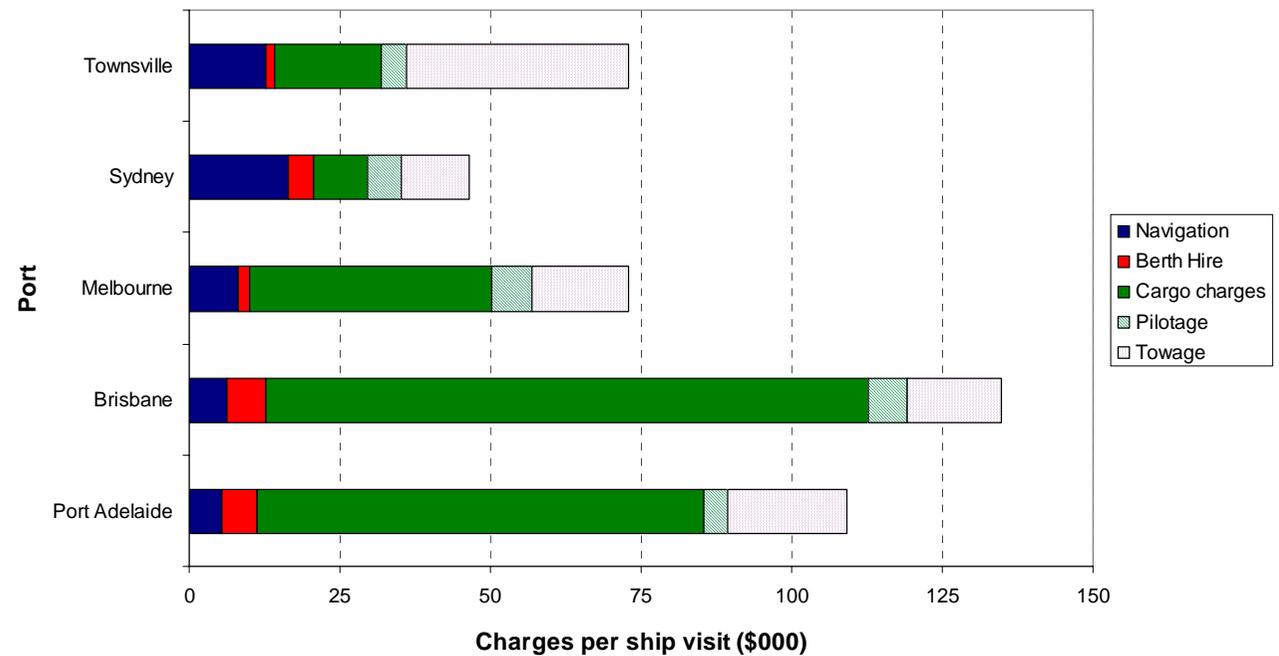
At Brisbane cargo charges constitute around 74% of total charges. It is important to recognise that the Brisbane wharfage charge consists of two distinct sub-charges — harbour dues and a pure wharfage charge — each of which is set at a different level (\$19.33 and \$20.88 per vehicle for harbour dues and wharfage, respectively).

By comparison wharfage accounts for approximately 67% of total charges at Port Adelaide. The Port Adelaide cargo charges tariff structure is more straightforward than Brisbane, with a single charge that is currently levied at \$29.63 per vehicle.

Wharfage charges only make up 19% and 24% of total costs at Sydney and Townsville, respectively.

The cost of harbour towage services at Townsville is significantly higher than at comparable ports — it accounts for around 50% of total charges in that port.

FIGURE 4-12 MOTOR VEHICLE VESSEL VISIT COSTS DETAIL



4.6 Containers

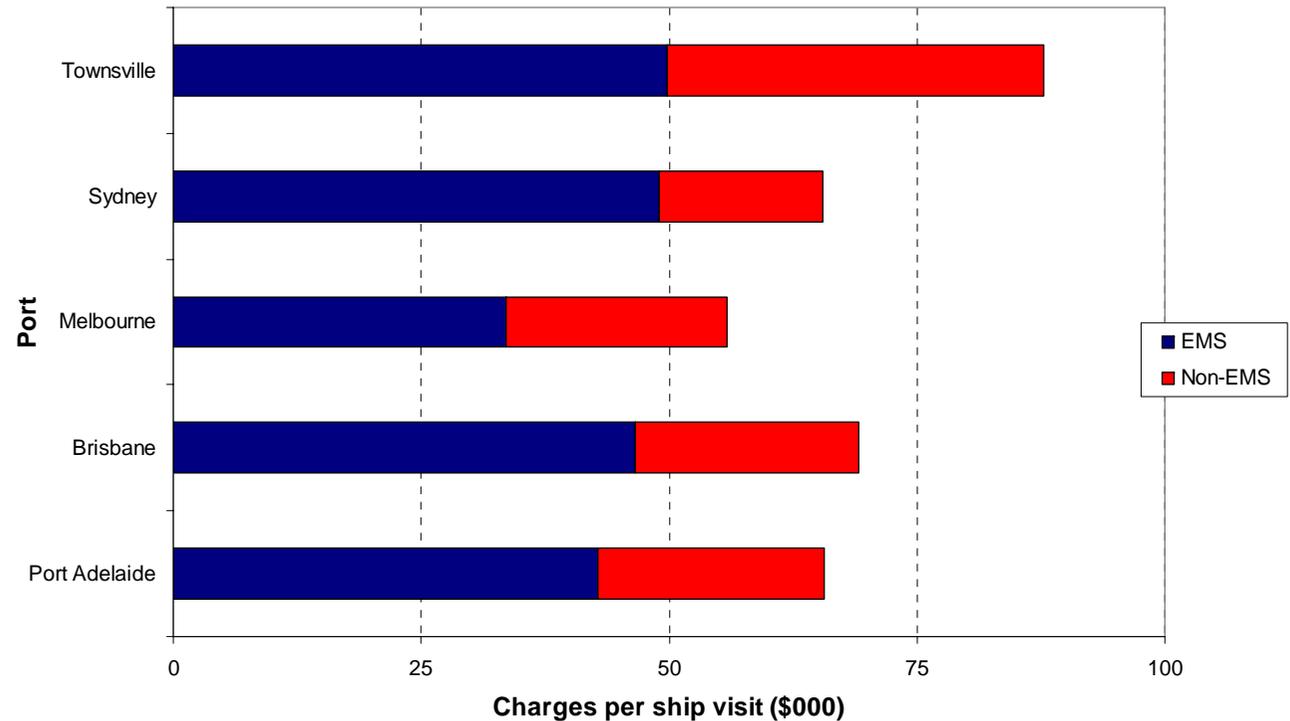
There are only four comparator ports with significant container cargo shipping operations. Port Adelaide is the only SA port receiving and dispatching cargoes on container vessels.

Figure 4-13 shows a relatively tight range for EMS only charges across the ports. With the exception of Melbourne, which is the cheapest container port (at approximately \$34,000 per container vessel visit), the other four ports sit between \$41,000 and \$49,000. Sydney is the most expensive port on this basis, while Port Adelaide sits in the middle.

The picture does change when non-EMS charges are included in the analysis. That is, Townsville has, by some considerable margin, the highest total charges for container vessel visits (around \$88,000). This is nearly 35% higher than total charges prevailing at Sydney and Port Adelaide.

Melbourne has the lowest total charges for container vessels — approximately \$56,000.

FIGURE 4-13 CONTAINER VESSEL VISIT COSTS TOTAL



The decomposition of total charges displayed in Figure 4-14 illustrates that Melbourne has the lowest cargo charges for the model container vessel (approximately \$21,000). This is underpinned by a rate of \$28.89 per container.

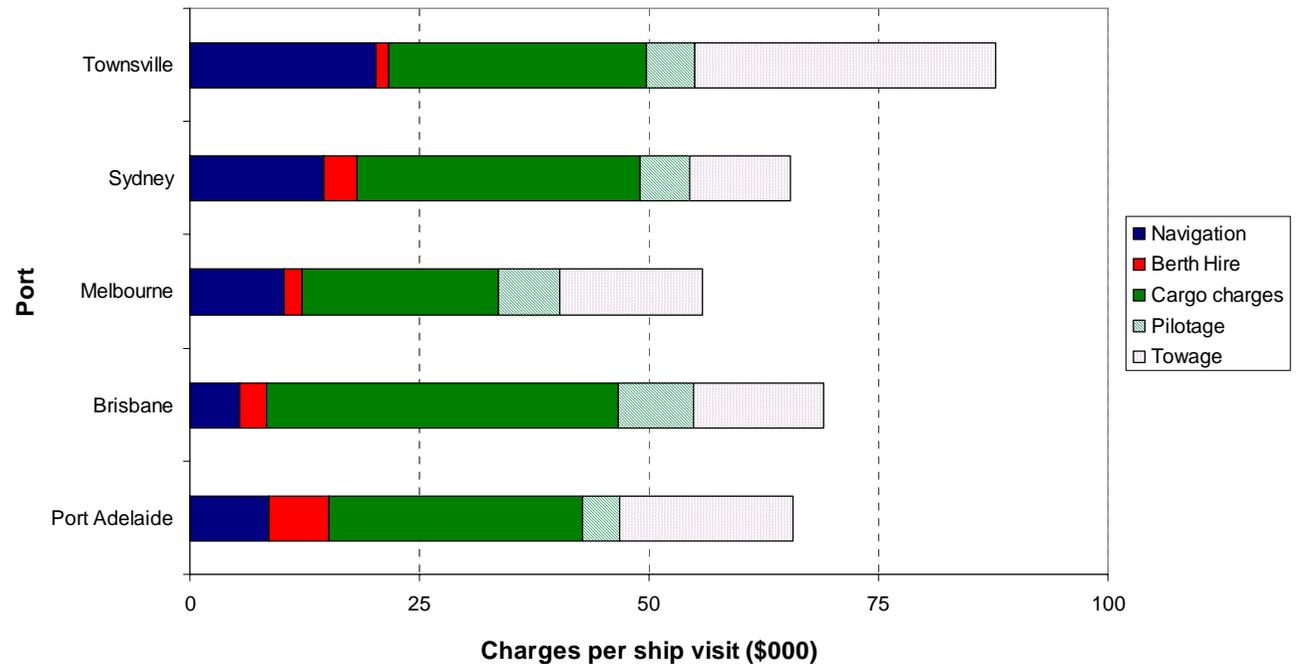
This compares with wharfage charges at both Port Adelaide and Townsville of around \$28,000. This is based on a rate of around \$37 per container.

Brisbane has the highest cargo charges, estimated at around \$38,000 per container vessel. This consists of (pure) wharfage and harbour dues rates of \$21.16 and \$30.53 per container, respectively.

The contribution of navigation charges is notable. These charges in Sydney and Melbourne represent 22% and 18% of total vessel charges, respectively. This compares with 13% of total vessel charges at Port Adelaide.

Towage costs at Townsville are higher than at comparable ports, standing at \$33,000. The same services are charged at \$19,000 in the Port of Adelaide.

FIGURE 4-14 CONTAINER VESSEL VISIT COSTS DETAIL



4.7 Livestock

There are only four comparator ports with sizeable livestock cargo shipping operations. Port Adelaide is the only SA port receiving and dispatching livestock cargoes using appropriate vessels.

Figure 4-15 shows Port Adelaide sitting comfortably within the middle of the range for EMS only charges. At around \$27,000 per livestock vessel visit Port Adelaide is approximately 46% and 23% cheaper than Geraldton and Portland.

Brisbane is the least expensive port for the model livestock vessel on both an EMS only (\$13,000 per visit) and total charges (\$37,000 per visit) basis. This compares with \$47,000 for Port Adelaide. Indeed Port Adelaide is the second cheapest port from a total costs perspective.

FIGURE 4-15 LIVESTOCK VESSEL VISIT COSTS TOTAL

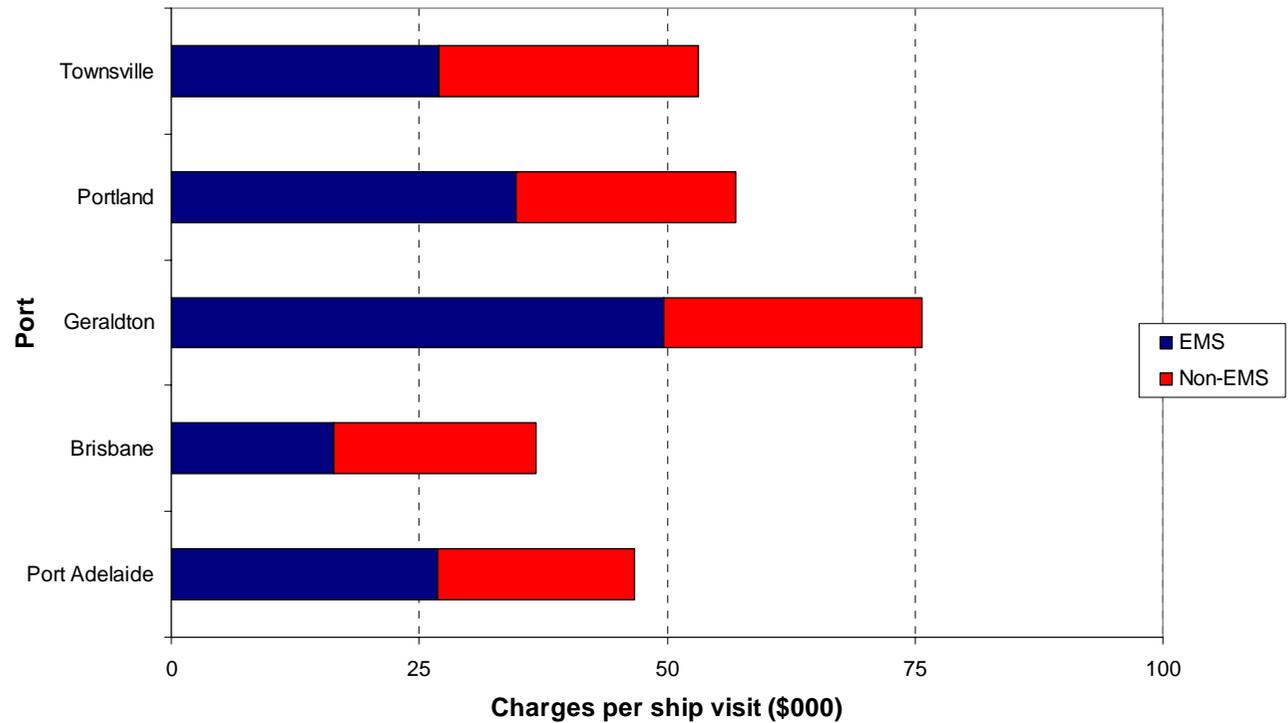
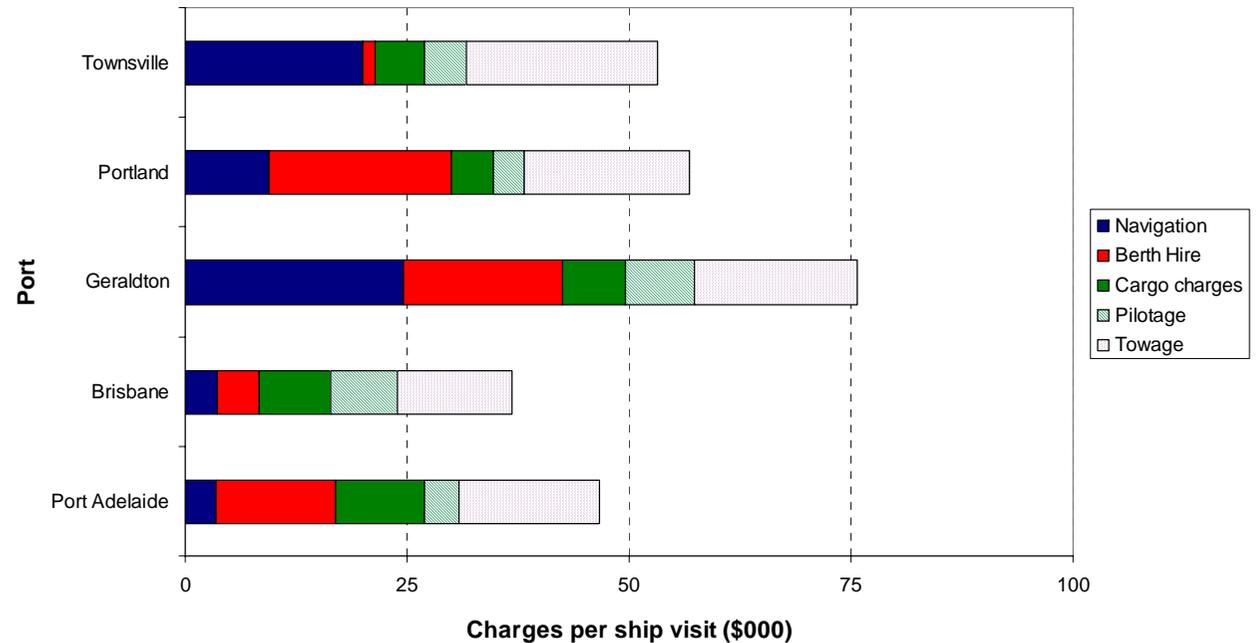


Figure 4-16 provides a more detailed breakdown of the various cost elements for the livestock model vessel.

In contrast to most of the other commodity vessel categories presented in this section, cargo charges generally make up a relatively modest proportion of total livestock vessel costs. Cargo service charges are responsible for 22% of total vessel costs at Port Adelaide. This is in contrast to 8% (of total vessel costs) at the port of Portland. the livestock (sheep and goats) cargo services charge is \$0.25 per head at Port Adelaide compared with a wharfage charge of \$0.12 per head at Portland.

A further striking feature is the level of berth hire charges, which explain approximately 36% and 24% of total vessel visit charges at the port of Portland and Geraldton, respectively. At around 28% Port Adelaide is broadly consistent with these comparator ports.

FIGURE 4-16 LIVESTOCK VESSEL VISIT COSTS DETAIL



5. SYNOPTIC RESULTS

5.1 Overall price comparison

As discussed in Section 2, the overall comparison of port prices was undertaken using a weighted average of price levels for specific commodities. In this section, we describe the steps taken in developing this overall measure of relative price levels.

5.1.1 Assembling and using trade data

Trade data for each individual port was assembled, drawing on a variety of sources, and each trade element assigned to one of the commodity groups defined in Table 3-1

In some instances, charges were expressed as prices per unit, while trade flows were expressed in mass or revenue tonnes. To deal with these cases, it was necessary to define some conversion factors. The conversion factors shown in Table 5-1 were used throughout the analysis.

TABLE 5-1: CONVERSION FACTORS USED IN ASSIGNING WEIGHTS

Cargo type	Unit	Mass tonnes	Revenue tonnes
Full containers	TEU	12	20
Empty containers	TEU	2	4
Liquid bulk products	kilolitre	0.80	1.0
Motor vehicles	unit	1.2	12.5
Livestock (sheep)	head	0.06	0.06

Sensitivity analysis undertaken to assess the impact of varying these assumptions on the analysis, indicated that the main conclusions were little affected by quite wide variations in these assumptions.

The proportions of each commodity group at each port in the sample set are shown in Table 5-2. It is clear from the figure that the composition of trade varies greatly from port to port. This variation, and the fact that, in a number of instances, a port's charges for one type of commodity may be high but for another commodity may be relatively low, make an overall evaluation of price levels difficult. Overcoming this difficulty requires weighting of prices for each commodity group in accordance with the relative importance of that component of the cargo mix.

5.1.2 Computing representative costs for each commodity group

The volumes, by commodity group, of the total trade through each port in the comparator set is given in Table 5-2 (Non-SA ports) and Table 5-3 (SA Ports) below.

Table 5-2 and Table 5-3 were used to develop representative costs per revenue tonne for each of the commodity groups. This was done separately for the SA ports, and for the non-SA Ports.

The representative cost per revenue tonne was obtained as the volume-weighted average of the cost at each individual port. This was done both for EMS charges only (see Table 5-4) and for the broader based cost measure that includes towage, pilotage and conservancy due (see Table 5-5). The results of this process are shown in Figure 5-1 and Figure 5-2.

TABLE 5-2: NON-SOUTH AUSTRALIA: REVENUE TONNES BY PORT AND CARGO CLASS

	Brisbane	Bunbury	Geelong	Geraldton	Gladstone	Melbourne	Newcastle	Port Kembla	Portland	Sydney	Townsville
Bulk grain	809,743	-	831,011	2,100,606	170,847	526,000	1,329,049	1,625,092	684,172	-	-
Discounted dry bulk	6,216,204	-	-	2,267,489	44,036,882	-	80,277,740	-	-	-	3,313,150
Standard dry bulk	430,166	11,250,856	3,204,342	628,704	45,848,393	1,483,826	3,309,780	20,737,248	2,347,156	1,306,972	3,254,314
Liquid bulk	13,763,235	1,341,316	8,526,258	221,228	1,143,906	5,087,402	-	219,158	136,426	12,727,394	1,304,390
Motor vehicles	3,590,500	-	-	-	-	7,843,078	-	4,435	-	375,180	164,780
Container	11,433,896	-	-	-	116,649	43,037,366	-	-	-	22,839,396	272,016
Livestock	9,834	-	-	18,474	-	-	-	-	60,842	-	12,756
General	1,857,066	126,338	299,454	30,990	380,108	6,257,203	656,318	3,339,012	474,961	240,645	471,486
Total	38,110,644	12,718,510	12,861,065	5,267,491	91,696,785	64,234,875	85,572,887	25,924,945	3,703,557	37,489,587	8,792,892

TABLE 5-3: SOUTH AUSTRALIA: REVENUE TONNES BY PORT AND CARGO CLASS

	Ardrossan	Port Adelaide	Port Giles	Port Lincoln	Port Pirie	Thevenard	Walleroo
Bulk grain	-	1,593,336	542,081	1,629,011	-	144,805	323,578
Discounted dry bulk	601,053	1,950,508	-	-	-	1,810,203	-
Standard dry bulk	-	1,844,806	-	215,997	648,300	-	179,256
Liquid bulk	-	2,138,394	-	112,642	-	-	-
Motor vehicles	-	999,863	-	-	-	-	-
Container	-	2,804,504	-	-	-	-	-
Livestock	-	14,412	-	-	-	-	-
General	-	388,699	-	-	-	12,494	-
Total	601,053	11,734,522	542,081	1,957,650	660,794	1,955,008	502,834

TABLE 5-4: EMS CHARGES PER REVENUE TONNE FOR EACH MODEL SHIP VISIT (2006/07 CHARGES)

	Grain- Handymax	Grain- Panamax	Dry bulk- general	Dry bulk - concession	Liquid bulk	Motor vehicle	Container	Livestock
Ardrossan	-	-	-	\$1.78	-	-	-	-
Port Adelaide	\$2.37	\$2.37	\$3.55	\$1.73	\$4.88	\$2.73	\$2.89	\$11.21
Port Giles	\$1.83	\$1.82	-	-	-	-	-	-
Port Lincoln	\$1.80	\$1.78	\$3.65	-	\$4.86	-	-	-
Port Pirie	-	-	\$3.65	-	-	-	-	-
Thevenard	\$1.95	\$1.94	-	\$1.72	-	-	-	-
Wallaroo	\$1.87	\$1.85	\$3.65	-	-	-	-	-
Brisbane	\$2.21	\$2.19	\$3.74	\$2.12	\$3.11	\$3.61	\$3.15	\$6.85
Bunbury	-	-	\$1.77	-	\$2.20	-	-	-
Geelong	\$1.41	\$1.63	\$1.60	-	\$2.80	-	-	-
Geraldton	\$3.98	\$3.89	\$2.18	\$3.08	\$4.14	-	-	\$20.67
Gladstone	-	-	\$2.67	\$3.11	\$3.99	-	-	-
Melbourne	\$1.48	\$1.45	\$2.21	-	\$2.38	\$1.61	\$2.27	-
Newcastle	\$1.42	\$1.35	\$1.49	\$1.43	-	-	-	-
Port Kembla	\$1.31	\$1.24	\$3.27	-	\$3.02	-	-	-
Portland	\$1.32	\$1.26	\$1.53	-	\$1.57	-	-	\$14.48
Sydney	-	-	\$2.71	-	\$2.50	\$0.95	\$3.31	-
Townsville	-	-	\$2.97	\$1.54	\$3.98	\$1.02	\$3.36	\$11.22

Note: The blank cells indicate that the port handled little or no cargo in that vessel category during 2006/07, and therefore no meaningful charge for that category is included in the analysis.

TABLE 5-5: TOTAL CHARGES PER REVENUE TONNE FOR EACH MODEL SHIP VISIT (2006/07 CHARGES)

	Grain- Handymax	Grain- Panamax	Dry bulk- general	Dry bulk - concession	Liquid bulk	Motor vehicle	Container	Livestock
Ardrossan	-	-	-	\$2.84	-	-	-	-
Port Adelaide	\$2.89	\$2.82	\$4.06	\$2.67	\$5.43	\$3.49	\$4.44	\$19.46
Port Giles	\$2.38	\$2.29	-	-	-	-	-	-
Port Lincoln	\$2.35	\$2.25	\$4.20	-	\$5.43	-	-	-
Port Pirie	-	-	\$4.24	-	-	-	-	-
Thevenard	\$2.50	\$2.42	-	\$2.77	-	-	-	-
Wallaroo	\$2.42	\$2.33	\$4.20	-	-	-	-	-
Brisbane	\$2.46	\$2.41	\$3.99	\$2.56	\$3.36	\$3.94	\$3.95	\$11.30
Bunbury	-	-	\$2.02	-	\$2.44	-	-	-
Geelong	\$1.95	\$2.06	\$2.19	-	\$3.39	-	-	-
Geraldton	\$4.73	\$4.55	\$2.93	\$4.02	\$4.93	-	-	\$31.55
Gladstone	-	-	\$3.18	\$3.99	\$4.50	-	-	-
Melbourne	\$1.96	\$1.87	\$2.69	-	\$2.86	\$2.27	\$3.64	-
Newcastle	\$2.64	\$2.53	\$1.82	\$1.94	-	-	-	-
Port Kembla	\$1.82	\$1.68	\$3.78	-	\$3.54	-	-	-
Portland	\$1.87	\$1.75	\$2.08	-	\$2.15	-	-	\$23.70
Sydney	-	-	\$3.10	-	\$2.90	\$1.49	\$4.42	-
Townsville	-	-	\$3.74	\$2.58	\$4.75	\$2.33	\$5.93	\$22.16

FIGURE 5-1: AVERAGE EMS CHARGES PER TONNE OF CARGO LOADED/DISCHARGED: VARIOUS MODEL SHIPS

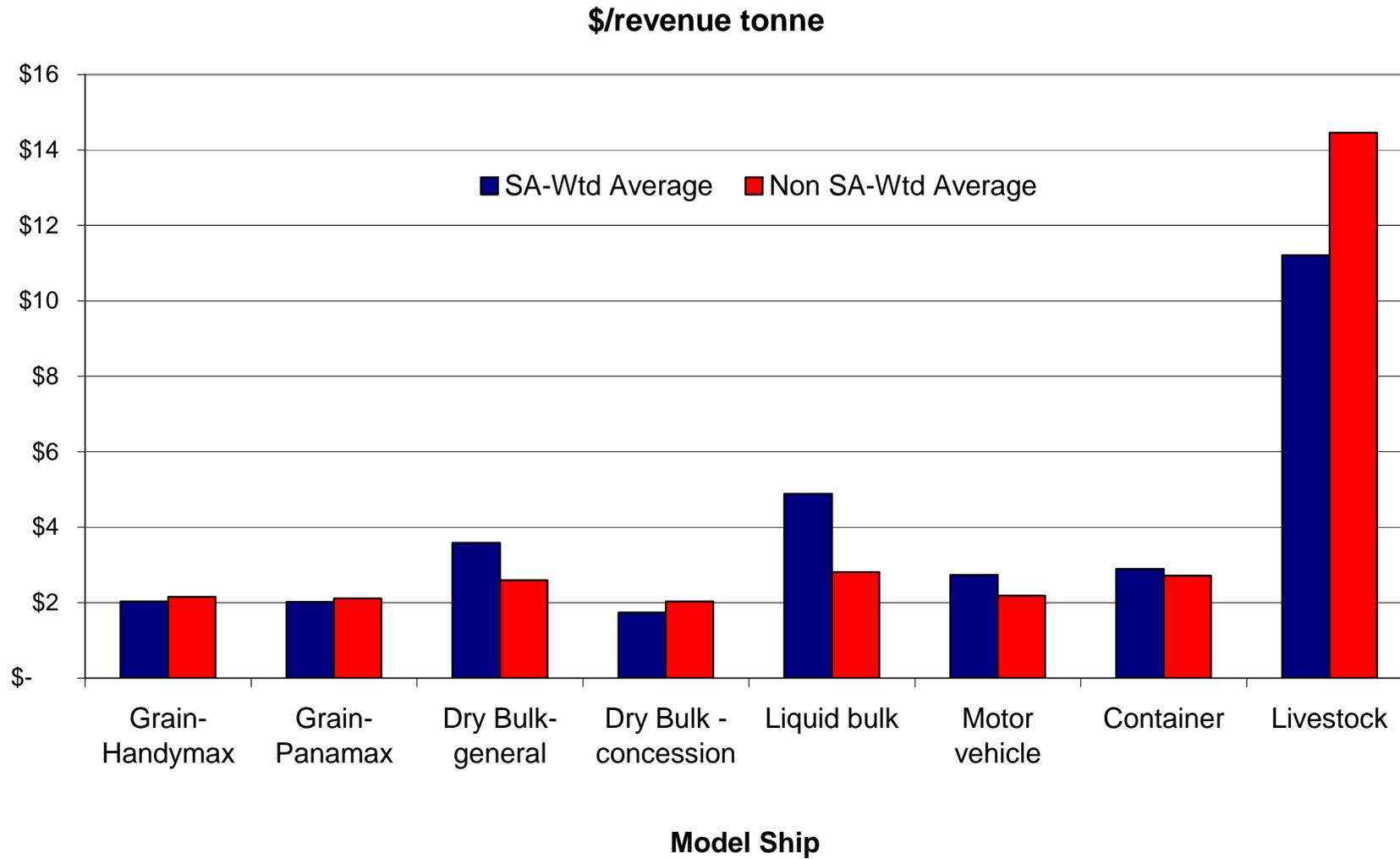
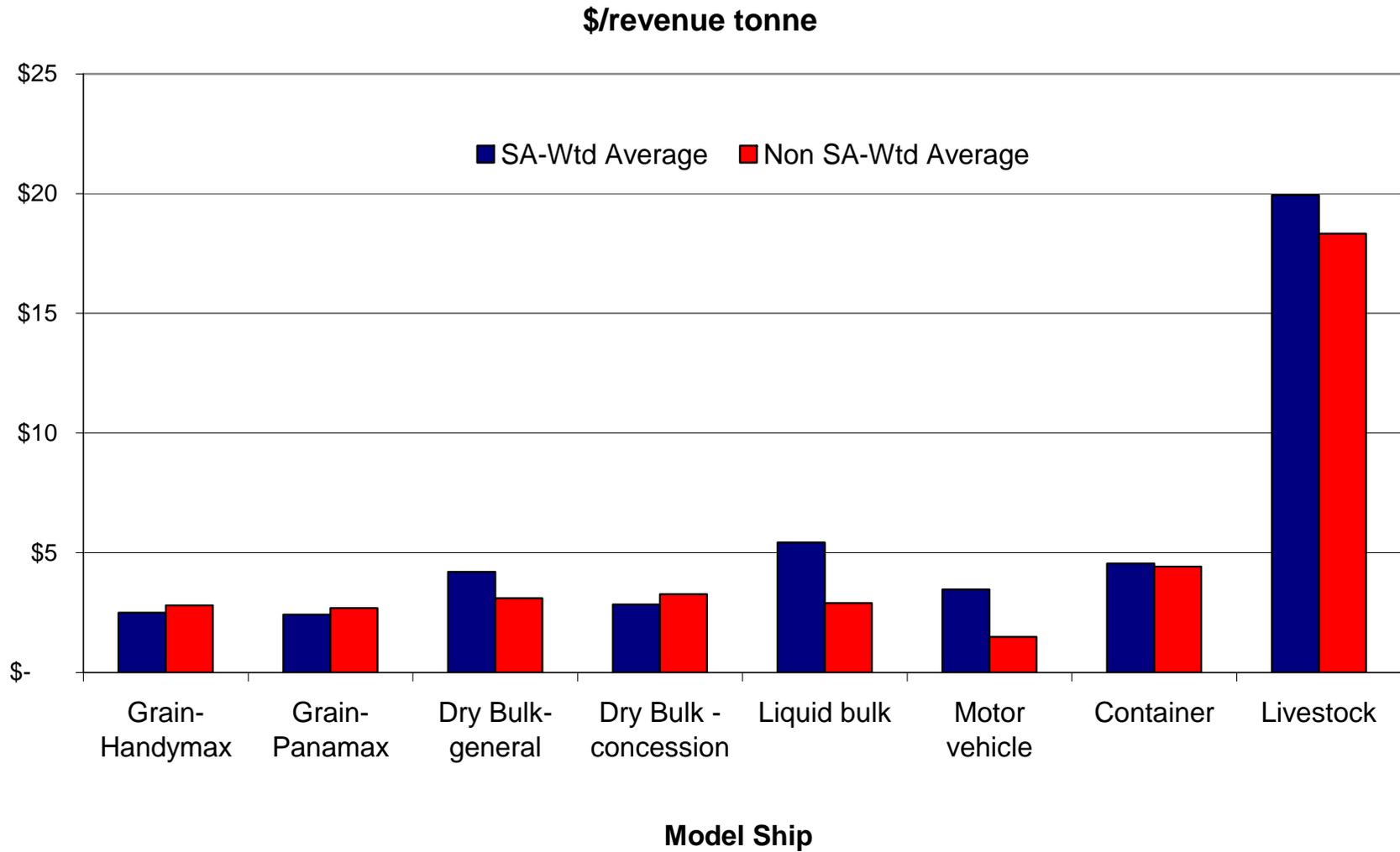


FIGURE 5-2: AVERAGE TOTAL CHARGES PER TONNE OF CARGO LOADED/DISCHARGED: VARIOUS MODEL SHIPS



Costs per tonne were estimated on the basis of a model ship visit. The set of model ships included two sizes of grain vessel (a Handymax ship and a Panamax ship) and consequently there were two estimates available for the cost per tonne of grain in each port. However, in all cases these estimates were reasonably close — typically within \$0.10 per tonne. Given the small difference, and absence of comprehensive data on the split of grain exports between Handymax and Panamax ships, a simple average of the two values was used as an estimator for the typical cost per tonne for grain exports.

Producing a single measure of relative prices

Building on these foundations, a single measure of relative prices was then constructed by weighting the representative price for each commodity group according to the relative importance of that particular cargo group in the overall trade mix. The results of this analysis are shown in Table 5-6 below.

The table suggests that the cost of using South Australian ports is generally higher than the cost of using the non-South Australian ports in the sample set. If EMS charges alone are considered, the difference is approximately 17.2%, with a range of 16.2% to 18.2% depending on which set of weights is applied. If all costs are included, the gap is slightly narrower, with the costs of using South Australian ports approximately 15% higher than the comparator ports.

TABLE 5-6: SUMMARY MEASURES OF RELATIVE PRICES

Weighted average port costs - EMS Charges 2006/07			
	Non SA Ports	SA Ports	Difference
Use Non-SA weights	\$2.42	\$2.86	18.2%
Use SA Weights	\$2.38	\$2.76	16.2%
Mean (geometric)	\$2.40	\$2.81	17.2%
Weighted average port costs - Total Charges 2006/07			
	Non SA Ports	SA Ports	Difference
Use Non-SA weights	\$3.36	\$3.87	15.1%
Use SA Weights	\$3.16	\$3.63	14.7%
Mean (geometric)	\$3.26	\$3.75	14.9%

Although South Australian port charges are somewhat higher than the average for the comparator ports, they lie well within the range covered by those ports. In Figure 5-3 the weighting technique outlined above was applied to the prices charged by each port individually, rather than to the two groups of ports. This is somewhat artificial, as it puts some weight on the process that would be charged in a particular port if certain cargoes that are not at present handled in the port were to use it. However, this is unlikely to greatly distort the outcomes.

FIGURE 5-3: COMPARISON OF WEIGHTED AVERAGE CHARGES – INDIVIDUAL PORTS (\$/REVENUE TONNE)

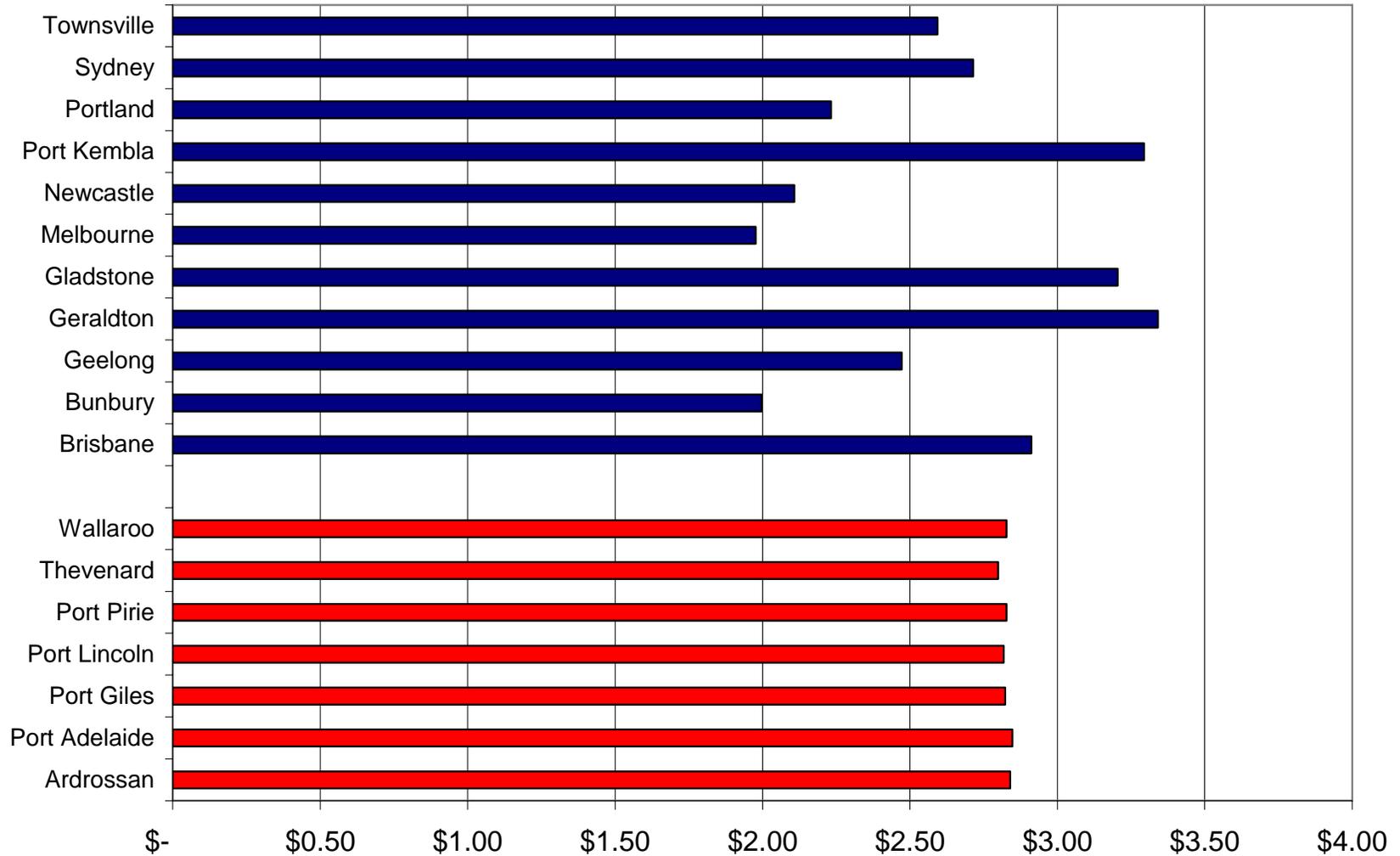


Figure 5-3 above shows that the general level of EMS charges in South Australian ports is, as one would expect given the largely uniform tariff that applies, very similar. This level is below the level observed in the ports of Port Kembla, Gladstone and Geraldton, and roughly comparable to the level of prices in Brisbane and Sydney. It is substantially higher than the level of charges in the ports of Townsville, Portland, Newcastle, Melbourne and Bunbury.

5.2 Changes since privatisation

At the time the ports of South Australia were privatised, a set of prices was already in place, and these prices were subject to control in the period immediately following the privatisation. These initial prices were set by the South Australian Government, not by the current owners, and would have determined what the purchaser was willing to pay for these assets. With this bid price set in an open market transaction, once the deal had been struck it is almost axiomatic that these prices, and the general changes in them that might reasonably be expected to occur over time, would return no more than a reasonable rate of return on the investment made.

To the extent that this is the case, it could be argued that the relationship between the level of prices charged in the South Australian ports does not yield any information of real regulatory interest. More important is how they have changed over time. More particularly, have the prices charged by the regulated entities changed more rapidly than might reasonably be expected, taking into account unavoidable cost increases and the growth in trade?

A direct approach to this issue is outside the scope of this benchmarking study. However, it can be approached indirectly by comparing the change in the cost of using the South Australian ports since privatisation with the change in the costs of the comparator ports.

The analysis described above was therefore repeated using the 2000/01 pricing schedules for each port and major service provider. The results of this analysis can be seen in Table 5-7 below.

TABLE 5-7: SUMMARY MEASURES OF RELATIVE PRICES

Weighted average port costs - EMS Charges 2000/01			
	Non SA Ports	SA Ports	Difference
Use Non-SA weights	\$2.18	\$2.53	15.9%
Use SA Weights	\$2.09	\$2.46	17.6%
Mean (geometric)			
2000/01	\$2.14	\$2.49	16.7%
Mean (geometric)			
2006/07	\$2.40	\$2.81	17.2%
Weighted average port costs - Total Charges 2000/01			
	Non SA Ports	SA Ports	Difference
Use Non-SA weights	\$2.76	\$3.30	19.5%
Use SA Weights	\$2.62	\$3.14	20.2%
Mean (geometric) –			
2000/01	\$2.69	\$3.22	19.9%
Mean (geometric) –			
2006/07	\$3.26	\$3.75	14.9%

5.3 Differences between commodity groups

One of the features of most port markets — and the South Australian ports are no exception in this regard — is that some users can switch to other options relatively easily, while others would find it very difficult to switch.

ESCOSA has been conscious of this in its price monitoring, which focuses on comparisons of charges for grain and bulk minerals, which are considered to be the most captive to the SA port system.

The results of the analysis are presented in Table 5-8 below.

TABLE 5-8: PRICE RELATIVITIES FOR SA AND NON-SA PORTS: DRY BULK AND OTHER CARGOES

DRY BULK (INCLUDING GRAIN)			
Weighted average port costs - EMS Charges 2006/07			
	Non SA Ports	SA Ports	Difference
Use Non-SA weights	\$2.26	\$2.47	9.6%
Use SA Weights	\$2.21	\$2.31	4.4%
Mean (geometric)	\$2.23	\$2.39	7.0%
Weighted average port costs - Total Charges 2006/07			
	Non SA Ports	SA Ports	Difference
Use Non-SA weights	\$3.19	\$3.36	5.5%
Use SA Weights	\$3.03	\$3.04	0.3%
Mean (geometric)	\$3.11	\$3.20	2.9%

OTHER CARGOES

Weighted average port costs - EMS Charges 2006/07			
	Non SA Ports	SA Ports	
Use Non-SA weights	\$2.71	\$3.54	30.9%
Use SA Weights	\$2.69	\$3.41	26.7%
Mean (geometric)	\$2.70	\$3.47	28.8%
Weighted average port costs - Total Charges 2006/07			
	Non SA Ports	SA Ports	
Use Non-SA weights	\$3.67	\$4.76	29.8%
Use SA Weights	\$3.41	\$4.74	39.0%
Mean (geometric)	\$3.53	\$4.75	34.3%

More detailed analysis of the dry bulk cargoes suggests that SA ports are particularly competitive in the grain sector. Table 5-9 shows the price relativities for grain and other dry bulk cargoes in 2006/07.

TABLE 5-9: PRICE RELATIVITIES FOR SA AND NON-SA PORTS: GRAIN AND OTHER DRY BULK CARGOES

Charges for Grain Vessels: 2006/07			
	Non SA Ports	SA Ports	Difference
EMS Charges	\$2.13	\$2.02	-5.0%
Total Charges	\$2.74	\$2.46	-10.3%
Charges for other dry bulk vessels: 2006/07			
	Non SA Ports	SA Ports	Difference
EMS Charges	\$2.26	\$2.48	9.8%
Total Charges	\$3.20	\$3.39	5.8%

Table 5-9 suggests port charges paid by grain vessels in South Australia were lower than the average for the non-SA ports, while charges for other dry bulk vessels were higher. However, the price differential for dry bulk cargoes other than grain (9.8% for EMS charges, 5.8% for total charges) is still lower than the price differential for the more contestable cargoes (28.8% for EMS charges, 34.3% for total charges).

6. SUMMARY AND CONCLUSION

The central concern for ESCOSA is whether the prices charged for essential maritime services in the regulated ports suggest that a change in regulatory strategy is warranted. In this session we discuss the insights that the benchmarking study provides that may help the Commission in forming a view on this question.

6.1 Overall prices levels

The analysis reported above indicates that there is considerable variability in relative port prices between commodity groups. South Australian charges are low relative to those in other ports from grain and certain dry bulk cargoes that enjoy low commodity-specific rates; but they are relatively high for the general run of dry bulk cargo, for liquid bulks, containers, cars and livestock.

Overall, charges for EMS in South Australia are somewhat higher (we estimate 17% higher) than the average of the non-South Australian comparator ports examined in this report. However, they lie within the range of prices charged by comparator ports. Of the eleven comparator ports examined, three have charges that, taken as a whole, are significantly higher than those in force in South Australia; two are (roughly) at the same level; and five are significantly less expensive.

As discussed in the introductory chapter to this report, there are many reasons why level of charges may differ between ports, most of which do not relate to either avoidable inefficiencies or excessive profits. Two of these reasons are of particular interest here.

The first of these is scale.

Flinders Ports in South Australia is unusual in that it is a single port corporation whose operations cover a number of geographically dispersed sites. Until recently, the only broadly comparable port organisation in Australia was the Ports Corporation of Queensland. (The formation of the Tasmanian Ports Corporation has added a third similar enterprise). The operations of all of the other Australian ports are located in reasonable physical proximity to each other.

There are diseconomies associated with this. While operating several small ports under a single ownership eliminates some of the disadvantages of small scale, it cannot eliminate them all. In particular, it cannot eliminate low physical asset utilisation rates at remote sites. In addition, there are costs as well as benefits associated with sharing resources over several remote sites.

Moreover, even in aggregate the throughput of the South Australian ports is not great. Adelaide does not have the large container throughput of the other capital city ports; and the SA regional ports do not enjoy the large scale mining exports that characterise Newcastle, Gladstone, and Port Kembla. As a result, the total tonnage through all of the SA ports combined is less than that of most of the individual comparator ports. The average throughput of the seven SA ports is in the order of 2.5 million revenue tonnes; for the eleven comparator ports, the average is approximately 35 million.

It is very difficult to estimate how much impact this has on achievable port costs — and consequently on sustainable pricing levels — because of the very large number of other factors that also influence relative costs. Figure 6-1 plots the relationship between the scale of port operations and the level of port prices for the ports included in this benchmarking study.

FIGURE 6-1: RELATIONSHIP BETWEEN PRICE LEVEL AND SCALE OF PORT OPERATIONS

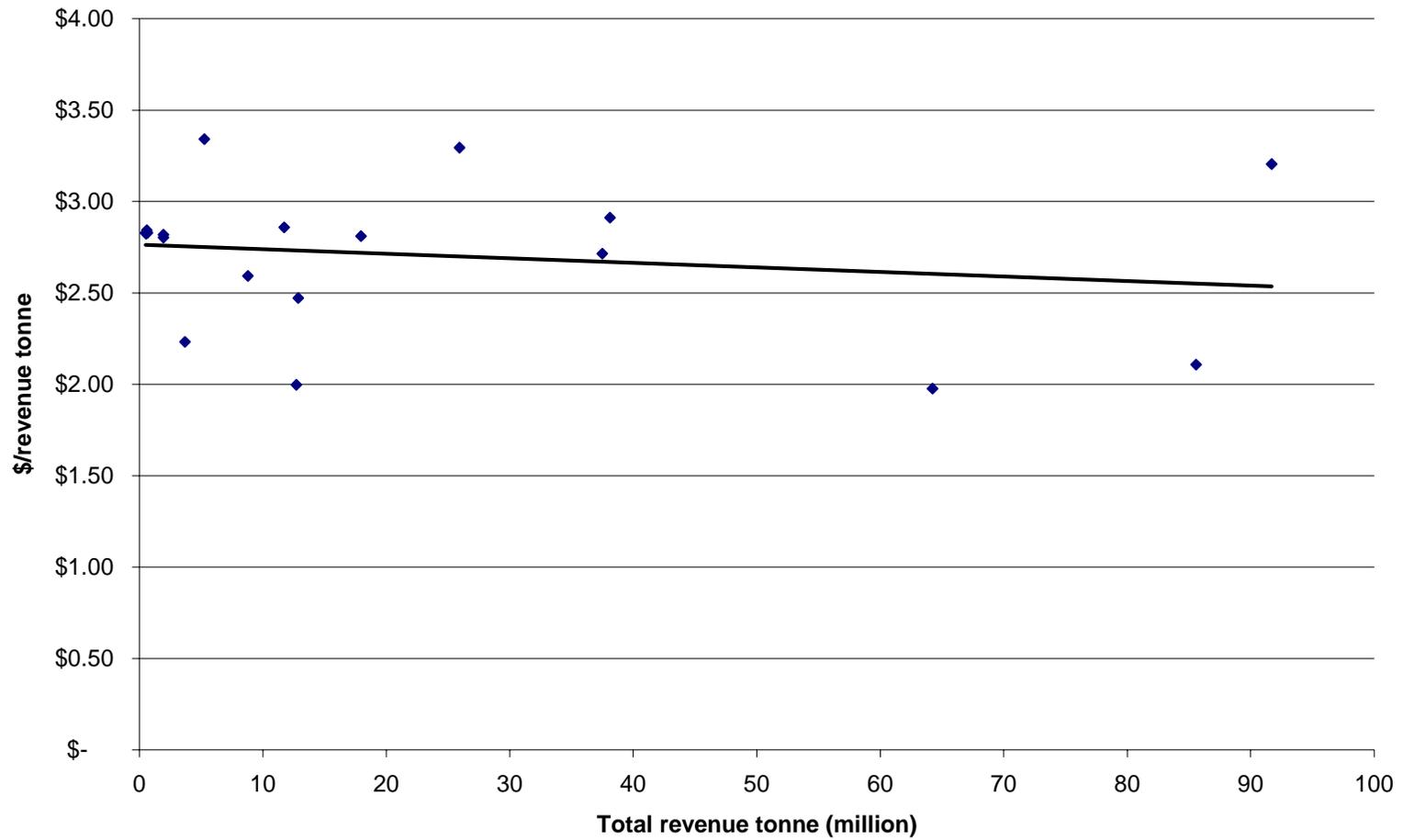


Figure 6-1 shows a very weak but discernible relationship between these two variables. Regression analysis indicates that the explanatory power of the relationship is very poor, and the correlation not strong enough to provide solid ground for rejecting the possibility that the apparent relationship is purely due to random errors in the data. But the data may nevertheless provide some indication of the likely magnitude of the scale effect.

The second factor that could provide a partial explanation of the difference in port charges is the under-pricing of many of the (government-owned) comparator ports. It is widely acknowledge that many, though not all, Australian ports fail to earn an adequate rate of return on the capital investment in them.

This is sustainable in a government enterprise, but not for a privatised port. Flinders Ports and Ausbulk will be constrained to price to achieve commercial returns, while publicly owned comparator ports may price at a lower level.

The Productivity Commission's report on the performance of Government Trading Enterprises provides some insight into the possible magnitude of this effect (Productivity Commission, 2006). The report provides information on seven of the eleven comparator ports. This is reproduced in Table 6-1.

TABLE 6-1: REPORTED RATES OF RETURN FOR SELECTED AUSTRALIAN PORTS

	Return on Assets	Asset Base (\$m)	Revenue (\$m)	Shortfall/ (Surplus) (\$m)
Newcastle	9.0%	161	43	(1.5)
Port Kembla	14.0%	163	39	(9.7)
Sydney	8.3%	965	151	(2.4)
Melbourne	3.8%	958	124	40.7
Gladstone (CQPA)	4.3%	659	135	24.7
Brisbane	5.3%	1604	141	44.1
Townsville	2.1%	178	29	10.6
Total		4688	662	106.5
DBCT - permitted	8.05%			

Also shown in the table is the Queensland Competition Authority's estimate of an appropriate weighted average cost of capital for the Dalrymple Bay Coal Terminal. This is included as an indicator of an appropriate rate of return for an Australian port facility.

The table shows that some ports achieve or exceed this rate, while others fall well short of it. But in aggregate there is a significant shortfall of slightly in excess of \$100 million across the seven ports. This amounts to approximately 16% of aggregate revenue. The Productivity Commission data therefore suggests that these ports collectively are under-pricing by around 16%, which is almost exactly the observed difference between the SA port prices and those of the comparator ports.

It therefore seems reasonable to suggest that these two factors — the scale effect and under-recovery of the cost of capital by publicly owned ports — may be sufficient to explain the observed difference in prices between the South Australian and comparator ports.

6.2 Changes in prices over time

Table 6-2 below compares the results of the analyses performed using 2000/01 and 2006/07 pricing data.

The table indicates little change in the ratio of SA to non-SA port prices over this period. Nominal SA EMS-based port prices were approximately 16.7% higher than equivalent interstate port prices in 2000/01; they are 17.2% higher now.

TABLE 6-2: COMPARISON OF RESULTS OF ANALYSES USING 2006/07 AND 2000/01 PRICES

Weighted average port costs - EMS Charges 2006/07			
	Non SA Ports	SA Ports	Difference
Use Non-SA weights	\$2.42	\$2.86	18.2%
Use SA Weights	\$2.38	\$2.76	16.2%
Mean (geometric)	\$2.40	\$2.81	17.2%
Weighted average port costs - EMS Charges 2000/01			
	Non SA Ports	SA Ports	Difference
Use Non-SA weights	\$2.18	\$2.53	15.9%
Use SA Weights	\$2.09	\$2.46	17.6%
Mean (geometric)	\$2.14	\$2.49	16.7%

Put differently, in nominal terms average EMS charges have increased by around 12.7% across non-SA ports, compared with an estimated rise of 12.2% in SA ports over the 2000-01-2006-07 period. In real terms, this equates to declines of 2.5% and 3.0% for non-SA and SA ports, respectively over the 2000/01-2006/07 period. These real estimates are based on general increases in the national consumer price index (CPI) of 15.2% over this period.

Overall, there is no evidence in these figures that port charges in South Australia have increased unreasonably since privatisation.

6.3 Price differentials for different cargo groups

Table 6-3 compares the difference between SA and interstate port prices for two different commodity groups.

TABLE 6-3: COMPARISON OF RESULTS OF ANALYSES BETWEEN CARGO GROUPS

Weighted average port costs - EMS Charges 2006/07			
	Non SA Ports	SA Ports	Difference
Dry bulk (including grain)	\$2.23	\$2.39	7.0%
Other cargoes	\$2.70	\$3.47	28.8%

The first group — dry bulk cargoes — is the group that is considered to be particularly vulnerable to the abuse of market power by the port service provider.

The table shows that SA ports are more expensive than the non-SA ports in our sample for both groups of commodities. However, in the case of dry bulk cargoes, the difference is significantly lower. For EMS charges, the difference for dry bulk commodities is around 7.0%. By contrast, for the ‘other cargo’ group, which includes containers and motor vehicles as well as liquid bulk and livestock, the difference is slightly below 30%.

This result is counter-intuitive, and the reasons for it are unclear. But the most plausible explanations appear to be:

- **perceived ability to pay.** Much of South Australia’s dry bulk cargo consists of low-value exports, and there may be a concern that competitive port charges for these commodities are vital if these exports are remain viable.
- **the recency of some infrastructure investments.** Much of the infrastructure investment in the regional ports that handle most dry bulk cargoes is old and largely depreciated, whereas there has been significant recent investment (including a major deepening project) in the port of Adelaide, through which most non-bulk traffic passes.
- **historical pricing patterns influenced by political pressures.** The (official) pricing structures currently in place were inherited by Flinders Ports from its predecessor, and have not been greatly changed. Political influences, and in particular pressure to maintain low prices for rural exports, is likely to have been a factor in the formation of these inherited price structures.

Our general conclusion is that the benchmarking results indicate that the combination of market pressures and current regulatory arrangements appears to have been effective in protecting the interests of South Australian port users.

A. APPENDIX

Notation

Let v_{ij} be the volume, in revenue tonnes, of cargo of type ‘i’ through port ‘j’. Let p_{ij} be the port charges, per revenue ton, incurred in shipping cargo of type ‘i’ through port ‘j’.

Define two sets of ports, S and O, where S is the set of South Australian ports, and O is the set of other ports. That is, if $j \in S$, then j is a South Australian port, and if $j \in O$, then j is a non-South Australian port.

Let P_{iS} be the representative price of moving cargo of type ‘i’ through South Australian ports, and P_{iO} be the representative price of moving cargo of type ‘i’ through non-South Australian ports.

Let V_{iS} be the total volume of cargo of type ‘i’ through South Australian ports, and V_{iO} be the total volume of cargo of type ‘i’ through non-South Australian ports.

Let W_{iS} be the share of cargo of type ‘i’ in the total cargo through South Australian ports, and W_{iO} be the share of cargo of type ‘i’ in the total cargo through non-South Australian ports.

Let P_S be estimator of overall price levels in South Australian ports, and P_O the estimator of overall price levels in non-South Australian ports.

Computing the estimators of overall price levels

$$\text{Compute } P_{iS} = \frac{\sum_{j \in S} v_{ij} p_{ij}}{\sum_{j \in S} v_{ij}} \quad \text{and} \quad P_{iO} = \frac{\sum_{j \in O} v_{ij} p_{ij}}{\sum_{j \in O} v_{ij}}$$

$$\text{Compute } W_{iS} = \frac{\sum_{j \in S} v_{ij}}{\sum_{j \in S} \sum_i v_{ij}} \quad \text{and} \quad W_{iO} = \frac{\sum_{j \in O} v_{ij}}{\sum_{j \in O} \sum_i v_{ij}}$$

The overall price indicators are then constructed as the geometric mean of two estimators calculated using these P_{iS} , W_{iS} , P_{iO} , W_{iO} values. One of these estimators is calculated by applying the W_{iS} weights to both sets of prices; the other is calculated by applying the W_{iO} weights to both sets of prices.

$$P_S = \sqrt{(\sum_i W_{iS} P_{iS})(\sum_i W_{iO} P_{iS})}$$

$$P_O = \sqrt{(\sum_i W_{iS} P_{iO})(\sum_i W_{iO} P_{iO})}$$

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Essential Services Commission (2004), *2004 Ports Price Determination Final Price Determination*.

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Bureau of Transport and Regional Economics, (various issues), *Waterline*, available online <http://www.btregov.au>

Productivity Commission 2006, *Financial Performance of Government Trading Enterprises, 2000-01 to 2004-05*, Commission Research Paper, Canberra, July.

C. LIST OF DATA SOURCES USED IN THE MODELS AND ANALYSIS

Port Name	Author	Document Name	Source
Albany	Albany Port Authority	Annual Report 2002-03	http://www.albanyport.com.au/images/annrpt03.pdf
Albany	Albany Port Authority	Annual Report 2005-06	http://www.albanyport.com.au/images/annrpt06.pdf
All Non-SA ports	Adsteam Agency Pty Ltd	Guidelines to Australian Port Cost Tariffs	
Bunbury	Bunbury Port Authority	Trade Statistics 1997-2006	Internal
Esperance	Esperance Port Authority	2004 Annual Report	http://www.esperanceport.com.au/downloads/PortAuthorityAR2004.pdf
Esperance	Esperance Port Authority	2006 Annual Report	http://www.esperanceport.com.au/downloads/report/EPA%20Annual%20Report%202006.pdf
Geelong	Toll Geelong Port???	Trade Statistics 2000-06	Internal
General	Adsteam	Adsteam Newsletter various issues	
Geraldton	Geraldton Port Authority	Annual Report 1999-2000	http://www.gpa.wa.gov.au/
Geraldton	Geraldton Port Authority	Annual Report 2000-01	http://www.gpa.wa.gov.au/
Geraldton	Geraldton Port Authority	Annual Report 2001-02	http://www.gpa.wa.gov.au/
Geraldton	Geraldton Port Authority	Annual Report 2002-03	http://www.gpa.wa.gov.au/
Geraldton	Geraldton Port Authority	Annual Report 2003-04	http://www.gpa.wa.gov.au/
Geraldton	Geraldton Port Authority	Annual Report 2004-05	http://www.gpa.wa.gov.au/
Geraldton	Geraldton Port Authority	Annual Report 2005-06	http://www.gpa.wa.gov.au/
Geraldton	Geraldton Port Authority	2002-03 Annual Report	http://www.gpa.wa.gov.au/uploaddocs/Geraldton%20Port%20Authority%202002%20-%202003%20Annual%20Report%20-%20Web%20Ver%201.pdf
Geraldton	Geraldton Port Authority	2005-06 Annual Report	http://www.gpa.wa.gov.au/uploaddocs/C800%20-%20GPA%20Annual%20Report%20pages_screen_web_p1-35.pdf

Port Name	Author	Document Name	Source
Geraldton, Gladstone, Hay Point, Portland, Broome	Oceania Maritime Services Pty Limited	OMS Newsletter Issue 13 September 2006	www.oceaniamaritime.com.au
Gladstone	Central Queensland Ports Authority	Schedule of rates and charges: from 01 July 2006	
Gladstone	Gladstone Port Authority	The Port of Gladstone (Overview)	
Gladstone	Gladstone Port Authority	R G Tanna Coal Terminal Expansion Project: Project Brief	
Gladstone	Gladstone Port Authority	Port Information Hnadbook 2006	www.cqpa.com.au
Gladstone	Gladstone Port Authority	Gladstone Port Annual Report 2004-05	
Gladstone	Central Queensland Ports Authority	Financial Year 2004-05 Trade Performance Document (Includes 2000-01 statistics)	http://www.cqpa.com.au/Pages/Latest%20Stats/Trade%20Performance/ Financial%20Year%202004_05%20Trade%20Statistics.pdf
Melbourne	Port of Melbourne Corporation	2000-01 Annual Report	http://www.portofmelbourne.com/global/docs/AnnualReport00_01.pdf
Melbourne	Port of Melbourne Corporation	2005-06 Annual Report	http://www.portofmelbourne.com/global/docs/POMC_Annual_Report_ 2006_Section_1.pdf
Newcastle	Meyrick and Associates	Newcastle Channel Improvement Project	
Newcastle	AAPMA	Newcastle Trade Data 2000-01	http://www.aapma.org.au
Newcastle	Newcastle Ports Corporation	Trade Statistics 2005-06	http://www.newportcorp.com.au/page_default.aspx?pageID=80

Port Name	Author	Document Name	Source
Port Kembla	Port Kembla Ports Corporation	2000-01 Trade Data	Provided in an email from Port Kembla Ports Corporation
Port Kembla	Port Kembla Ports Corporation	2005-06 Annual Report	http://www.kembla.com.au/system/files//f5/o230//0506%20Annual%20Report.pdf
Port of Brisbane	Port of Brisbane Corporation	Schedule of Port Charges: Current as at 1 July 2006	http://www.portbris.com.au/files/Schedule%20of%20Port%20Charges%20INCL%20GST%20.pdf
Port of Brisbane	Port of Brisbane Corporation	Transport Operations (Marine Safety) Regulation 2004	Email
Port of Brisbane	Adsteam Marine	Operating terms and schedule of rates for services at Brisbane: Effective 1 April 2006	Email: infor.qld@adsteam.com.au
Port of Brisbane	AAPMA	Brisbane Ports Trade Data 2000-01	http://www.aapma.org.au
Port of Brisbane	Brisbane Ports Corporation	Trade Statistics 2005-06	http://www.portbris.com.au/files/PDF/Trade-Report-2006-06.pdf
Portland	Portland Port Authority	Portland Port Trade Data 1999-2005	
Ports of South Australia	ESCOSA	Ports Access Regime: Proposed Price Information Guidelines September 2002	
Ports of South Australia	ESCOSA	Ports Access Review: Final Report April 2004	
Ports of South Australia	ESCOSA	2004 Ports Price Determinations: Final Price Determination	

Port Name	Author	Document Name	Source
Ports of South Australia	ESCOSA	Ports Industry Guideline No.1 Access Price Information January 2005	
Ports of South Australia	ESCOSA	Ports Industry Guideline No. 2 Regulatory Accounts March 2005	
Ports of South Australia	ESCOSA	2005 Port Price Monitoring Report September 2005	
Ports of South Australia	ESCOSA	2006 Ports Price Monitoring Report September 2006	
Ports of South Australia	ESCOSA	2007 Ports Pricing and Access Review Issues Paper February 2007	
South Australian ports	??	SA Ports Draft Revenue Report (EGIS Projects)	
South Australian ports	ESCOSA	2005-06 Data from ESCOSA Internal Spreadsheets	Supplied by ESCOSA
Sydney Ports	Sydney Ports Corporation	2001-02 Commerce and Logistics Review	http://www.sydneyports.com.au/
Sydney Ports	Sydney Ports Corporation	2005-06 Trade Summary	http://www.sydneyports.com.au/TradeLogistics/main.asp?pageid=144
Townsville	Townsville Port Authority	2001-02 Annual Report	http://www.townsville-port.com.au/files/publications/annual_reports/TPA-AR_2001-2002.pdf
Townsville	Townsville Port Authority	2005-06 Annual Report	http://www.townsville-port.com.au/files/TPA_-_Annual_Report_2005-2006.pdf

