

Port Authorities in Australia

Occasional Paper

This Paper discusses the current situation and problems of Australian Port Authorities, particularly in the light of the limited amount of competition imposed by the economies of scale inherent in modern cargo-handling technologies, whether for bulk cargoes or for containers.

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Port Authorities in Australia

R. O. Goss

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FOREWORD

Professor Richard Goss from the University of Wales Institute of Science and Technology (UWIST) is a world renowned authority on seaport organisations and operations. He has undertaken various studies of ports around the world and has published extensively in this field.

With the current interest in Australia on shore-based shipping in general and port operations in particular, the Bureau considered that Professor Goss could make a valuable contribution to the debate in this country. Professor Goss accepted an invitation to take up a Research Fellowship in the Bureau, allowing him to investigate the structure and organisation of Australian port authorities and to propose some alternatives.

In publishing this Paper the Bureau has provided a forum for Professor Goss to present some views relating to Australian port organisations. However these views are his own and are not necessarily endorsed by the Bureau.

J W Moll
Assistant Director
Planning and Technology Branch

Bureau of Transport Economics
Canberra
October 1987

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PREFACE

This work was prepared during my three months tenure of a Research Fellowship at the Bureau of Transport Economics in Canberra. During this time I was able to visit Adelaide, Brisbane, Fremantle, Melbourne and Sydney and to discuss port problems with officials of the relevant State government departments and in the port administrations concerned. I also had the benefit of discussions with the Association of Employers of Waterside Labour, the Waterside Workers' Federation, with the Independent Broadcasting Authority in Britain and with interested academics at universities in some of those cities and at the Centre for Transport Policy Analysis in the University of Wollongong. I am grateful to all concerned for their patience in providing me with an introduction to the problems of Australian ports and especially to those which are, or might be, the concern of their port authorities. I was pleased to discover that some of the ideas discussed in this Paper were already being considered by certain of these people; so that they are not all new to Australia.

I much enjoyed my time in Australia. Accordingly, I am grateful to Mr. Keith Reid, then Director of the Bureau of Transport Economics, for inviting me, and to various colleagues and friends in Canberra for providing a congenial environment as well as for making helpful comments on this text. Outside official circles I am grateful to Dr. Ross Robinson of Wollongong and to Dr. Keith Trace of Monash University, Melbourne, for stimulating ideas and comments. Finally, I am grateful to Mrs. Wendy Jacob for her excellent typing and secretarial assistance.

No responsibility for errors or omissions should be attributed to any of these people: only to myself.

R O Goss
Bureau of Transport Economics
Canberra October 1987

SUMMARY

This Paper discusses the current situation and problems of Australian Port Authorities, particularly in the light of the limited amount of competition imposed by the economies of scale inherent in modern cargo-handling technologies, whether for bulk cargoes or for containers.

After an introduction which explains the purpose of the work the second chapter discusses the economic significance of seaports, some of the problems which currently appear in them and the economic effects of improving their efficiency. It concludes that these extend far beyond cost reductions, into increased trade in both directions involving a more effective exploitation of comparative advantages. It therefore concludes that it is important that the benefits of improved port efficiency should be diffused generally throughout the economy: not retained by the factors of production (land, capital and labour) employed within the ports.

The third chapter discusses whether public sector port authorities are needed at all and suggests that they are, for the following reasons: establishing property rights, planning, the provision of public goods, dealing with externalities and promoting efficiency. It then discusses the arguments for and against centralised port planning and for port authorities providing a comprehensive range of services rather than the more limited range of functions usual in Australian ports.

The fourth chapter presents four distinct strategies: the 'minimalist' (which involves little change), the 'pragmatic' which involves dealing with a variety of problems on an ad hoc basis, the 'public service', which involves comprehensive port operations by public bodies and the 'competitive', which uses the theory of economic rent together with the more recently-developed theory of contestability to suggest ways in which the market for the provision of port services could be made more contestable, thus reproducing some of the characteristics of free competition without losing the benefits of the economies of scale. It also makes some suggestions for the improvement of employment practices, industrial relations, for the reporting, accounting and statistical work of port authorities under any of these strategies, and for their relations with other bodies.

A final chapter brings the threads of the argument together and adds some final comments and suggestions.

The Paper thus presents and examines a variety of ideas: not recommendations.

CHAPTER 1 INTRODUCTION

A noteworthy development in maritime policy discussions of recent years has been the establishment of official committees to examine and report on a variety of questions referred to them. For example: Britain has had the Rochdale Reports of 1962 (ports) and 1970 (shipping); Canada has had the Sletmo Report of 1985; New Zealand has had reports and discussion documents in 1971, 1983, 1984 and 1985; and Australia has had the Crawford Report of 1982 and the Rowland and Webber Reports of 1986;

Generally, these reports have been consistent in rejecting both the public ownership of activities currently within the private sector and large-scale subsidy or other assistance for actual or potential national flag shipping industries. Many of them, however, have examined or drawn attention to other topics such as the activities of shipping conferences, and the substantial nature and wide variety of costs incurred as goods approach and pass through the seaports in their respective countries.

Investigation of the latter point has been particularly thorough in Australia, where the results of a seminar organised by the Bureau of Transport Economics (BTE) in Sydney in 1984, (BTE 1984) the Webber Report (Task Force on Shore-based Shipping Costs 1986) and the BTE study: 'Shore-based Shipping Costs: Non-bulk cargo' (BTE 1986) provide a growing body of understanding of factors in the total, or door-to-door, cost of transport, some of which have hitherto been neglected as much in published literature as in the development of policies.

The importance of this area should not be underestimated, for whilst in all countries (save those practising flag discrimination) traders have a large measure of choice as to the ship and flag they employ, they generally have to use their country's ports. This contrast is especially important in an island country such as Australia, where its effects are enhanced by the great distances between the major ports. Adelaide, Brisbane, Fremantle, Melbourne and Sydney are all several hundred kilometres apart and they account for over 96 per cent of container tonnage and over 86 per cent of total non-bulk cargo movements. They have, therefore, fairly distinct hinterlands with little overlapping. In this respect Australia is quite different from Great Britain, where numerous ports, shorter distances between them and a good internal transport system enable the ready substitution of one port for another. Also, the short sea distance to the Continent, where much port infrastructure is provided at the taxpayers' expense, provides an even wider choice.

As described in Chapter 4 of the BTE study (BTE 1986), port authorities in Australia are generally under the control of State governments, usually as statutory bodies.

Some of Australia's bulk trades pass through ports which are privately administered and operated; so that, with essentially a single user, conflicts are reduced and the problems associated with public goods and externalities (discussed in Chapter 3) are largely internalised - though safety and pollution may be exceptions. Still more bulk cargo passes through smaller ports which may experience much the same problems as larger ones, though usually on a more modest scale. It has therefore seemed appropriate (as well as convenient, given the timescale of this study) to concentrate on the five major ports named previously.

Generally, these (and other) port authorities in Australia follow the 'landlord' pattern, often investing in terminal facilities which are then leased out to private sector terminal operators, usually for very considerable periods: 25 years with an option to renew for another 25 years is an example. Sometimes these facilities are designed and built in conjunction with the lessees, who may make substantial investments themselves. The port authority may remain responsible for maintenance of the infrastructure as well as for marine safety within their area, for example through provision of navigational aids, pilotage and so on. Thus port authorities in Australia are not generally responsible for the handling of cargo on and off ships, nor for its storage or for receiving and delivering it. There are some exceptions: Fremantle Port Authority is responsible for some quayside work. This is for local historical reasons and applies only to non-bulk dry cargo outside the container terminal. Some other exceptions to the general pattern can be found, for example with the Bunbury mineral sands loader and the coal loader at Port Kembla.

Whilst, therefore, port authorities in Australia do not directly perform many of the most important activities for which ports basically exist, they generally provide at least the infrastructure and perform some of the necessary, if less costly, functions needed within a port. Moreover, by controlling the overall development of a port (for example what is built, when and where), by deciding who are to be its lessees (and upon what terms) and in being involved in other matters the port authority may, if it chooses, exercise an influence going far beyond the provision of a fairly narrow range of functions specified in the statutes establishing it. The Webber Report has suggested that this influence should be extended.

The central theme of this study, therefore, is the nature and range of activities which may seem appropriate to seaport authorities in Australia in the light of the economies of scale inherent in modern cargo-handling techniques. This inevitably involves discussing those activities which may be more appropriate for other bodies. In principle, of course, there is a wide range of options. It would be possible to advocate the 'comprehensive' or 'total' approach successfully adopted in Israel and in Singapore and described and analysed, together with the administration of 37 other ports in some 13 countries in an earlier study (Goss, 1979). This would mean port authorities taking direct responsibility for all port operations and becoming the sole employer; but this would involve, for Australia, drastic changes which, like most large-scale re-organisations, would be expensive and time-consuming for those involved and uncertain in its results.

At the other extreme there is the port authority which confines itself so closely to being a landlord as to need only a small staff. For example, the Canadian port of New Westminster, B.C., had in 1978 a cargo throughput of some 1 million tonnes of various commodities and a port authority staff of seven, including two typists, one of whom compiled the port statistics. The Port Director's attitude was: 'if it can be done by business then it should be done by business', so they responded to requests from potential tenants for new terminals and hired private sector firms to survey, construct and maintain the resulting port facilities. By 1986 they had adopted more vigorous policies of marketing and expanding their port, the name of which had been changed to Fraser Port: but their staff had risen to no more than 13. Such a policy, however, implies relying upon competition to maintain efficiency and it will be argued later in this Paper that this is not always realistic today.

Between these two extremes lies a multitude of intermediate positions, most of which can be found somewhere in the world today. A problem for Australians, therefore, is that of choosing within this wide range of possibilities in such a way as to serve Australian needs in the future. This study is intended to assist in these choices.

Chapter 2, provides some basic analysis of the economic importance of seaports, in general and to Australia. Chapter 3 discusses whether port authorities, in the sense in which they are generally understood (that is, as public sector, or at least quasi-governmental bodies) are needed at all and, if so, for what reasons. It continues with a discussion of the case for centralised control of ports and of the 'comprehensive' versus 'landlord' options for the scope of port authorities. Chapter 4 examines some of the possible options and their implications for these port authorities, the State governments and for the Commonwealth Government as well as for the port employers and trade unions involved. Neither Chapter 4 nor any other part of this work contains any recommendations, since it would be more appropriate for these to come from those who are expert in Australian conditions. Chapter 5 presents some conclusions.

CHAPTER 2 THE ECONOMIC IMPORTANCE OF AUSTRALIAN SEAPORTS

Because Australia is an island continent, and situated far from most of the countries with which it trades (Blayney 1982), the economic efficiency of its seaports is of great importance. Whilst ports may be likened to gateways (Bird 1968), providing facilities for the movements of imports and exports, they also provide barriers, or impediments to trade, in the form of the costs that must be paid for the passage of goods (Goss 1984). As will be seen in Chapter 4, some of these costs involve the employment of real goods and services while others, especially some of those levied by port authorities, resemble taxes or tolls and are not at all related to the marginal social costs of specific activities, though national income statistics generally treat them as if they are, rather than as transfer payments.

The charges levied by port authorities, however, are generally of much lesser significance than the two great costs traditionally associated with the loading and unloading of cargo from ships: those of stevedoring and of the ships' turnround time in port. The former conveniently appears largely as current cash expenditure (for example as waterside workers' wages). The latter is more difficult to measure in a short run sense, since it consists largely of the opportunity costs of the ships themselves, which must vary with the state of the shipping market. In the long run, however, it involves, *inter alia*, the opportunity cost of capital in general and, on this basis, it appears that the cost of ships' turnround time in port is generally of about the same significance as the cash costs of stevedoring. A more extended and technical discussion of this topic has appeared in the essay by Goss (1977). It will not be discussed separately here since, for cargo liners and container ships, it is supposed to be covered in the ships' freight rates and for tramps, bulk carriers and tankers it is reflected in demurrage and despatch money.

From the end of World War II onwards the growing importance of these two sources of costs was increasingly disturbing and stimulated a number of technological advances. In the bulk trades these consisted of increasingly specialised and capital-intensive cargo-handling devices, often involving the use of stacker-reclaimers and conveyor belts for loading, and of very large grabs on transporter cranes for unloading.¹

1. Canada, however, is noteworthy for the development of self-unloading bulk carriers with ship-borne conveyors and discharging booms. These can be used for topping-up large ships after they have reached deeper water.

The technological aspects of all this are now well known, so that it is possible to handle such cargoes at several thousand tonnes per hour. For example a coal-loader recently constructed for Colombia has a rated maximum output of 11 000 tonnes per hour, though of course no such performance could be achieved on average. It would be easy to double this by installing two, though ships' time in port would probably then be limited by such other factors as the rate at which ballast can be pumped out, crew changes, minor engine repairs or the multitude of other matters which can safely be ignored while a ship is at sea but which become crucial impediments to leaving port. Indeed, it is already common for such factors to cause significant delays. Existing examples of modern bulk-loading infrastructure in Australia include the coal-loaders at Newcastle and Port Kembla, both of which have rated (maximum) capacities of some thousands of tonnes per ship per hour. One of those at Newcastle has achieved the remarkably high rate of 6800 tonnes per hour averaged over the stay of one ship. Iron ore, pellets, bauxite and alumina are amongst other cargoes with well-developed handling facilities in Australian ports.

In the non-bulk trades the general adoption of containers has produced similar economies of scale, though not without drastic effects both on ship and terminal design and on the organisation of work ashore and afloat. The development of specialised ('neobulk') ships (for example newsprint, woodchip or pure car carriers) usually with a concentration on fast and economical cargo handling, has had similar effects on certain other goods and routes. A well-known example seen in Australian ports is the live sheep carrier, often converted out of a very large tanker and carrying up to 125 000 sheep in a multi-floor structure above deck.

The advances made in the shipping and handling of bulk and non-bulk cargo have greatly increased the productivity of waterside labour. They have thus reduced the cost of both stevedoring and of ship turnround time, as well as the numbers of port workers needed. Because optimal ship size is inversely related to turnround time (Thorburn 1960), ship sizes have increased. Optimal sea speed is positively related to ship size, so this has risen too, despite fuel cost increases. Higher sea speeds, improved turnround times and increased ship sizes have all contributed to there being far fewer ships, for any given trade and cargo volume, than there would have been without these advances. It is probable that competition in world shipping has generally ensured that the economic effects of these improvements, of the excess of supply in world shipbuilding and of favourable shipbuilding finance have largely been passed on to the consumers of shipping services, through freight rates that are lower and transit times that are shorter than they otherwise would have been.² Comparable physical changes have appeared in many of the world's ports, for the economies of scale which have been so widely appreciated in ships have their counterparts ashore.

The technological effects of these economies of scale are obvious, though their economic results, for example on industrial structure, have attracted less attention. Yet, if a coal or other bulk cargo handling facility, or a container terminal, can work

2. For a contrary view, see Dick (1983).

so fast, then it is obvious that we will need very few of them. It follows that, if any port authority has been relying on competition amongst its tenants to ensure efficient operations, it may need to reconsider its general position in this respect. If it does not, then the potential cost improvements may be dissipated in a mixture of enhanced profits, of improved wages and other conditions of work and of induced mediocrity (or any combination of these) rather than being passed on to the port's users and thus the community. For some relevant Australian examples, see Prices Justification Tribunal (1977ab), discussed by Goss (1982) and in Chapter 3. There is, therefore, a danger that the economic benefits of these advances may not be spread widely, especially if port authorities continue to rely on traditional forms of competition, such as having several competitors, when these are no longer appropriate.

It may be argued that economic welfare is greater if the advantages of increased efficiency in a country's seaports accrue to its population as a whole, whether in their capacities as consumers or as producers. Considering imports first, it is immediately obvious that lowering the barriers representing the costs of moving the existing trades through a port will make consumers better off. Their real incomes will have increased and it is likely that they will buy more of the goods in question. But the costs of moving cargo through the port will also have been lowered for other goods, and for goods from more distant origins, which previously could not have been imported profitably. Similarly, exporting will have become more profitable, and it is likely that it will be carried on more extensively, with opportunities for a wider range of goods to be sent to a wider range of destinations and thus providing a greater level of employment with a more varied structure.

The peculiar circumstances of sea transport, moreover, make it likely that the effects of extending trade may be large. This follows from the economies of scale in ship size, whose effects are shown in Figure 2.1.

In this figure the horizontal scale represents distance and the vertical ordinate cost. The horizontal line PP' represents a world price for some good with insurance, currency fluctuations, directional imbalances of trade and transactions costs all being ignored for the sake of simplicity by being placed below the horizontal scale. OX on the vertical ordinate represents the total cost of moving cargo through a port, regardless of the form the component costs may take; it is therefore the origin of the line XX' which indicates how the total cost of sea transport varies with distance. This line is concave from below because of the economies of ship size at sea and because, at longer distances, it is economic to use larger ships. It intersects PP' at a point equivalent to the distance OA . If, then, port costs are reduced by XY this line falls from XX' to YY' and it now intersects PP' at a point equivalent to the distance OB .

Whilst the figure is purely illustrative the general picture is realistic. In particular, the large proportionate increase in the maximum trading distance is derived from the low slope of the cost curves (indicating the low marginal cost of distance for sea transport) as well as their concavity. This, of course, is merely one way of suggesting that the long run elasticity of demand for port services may be significant,

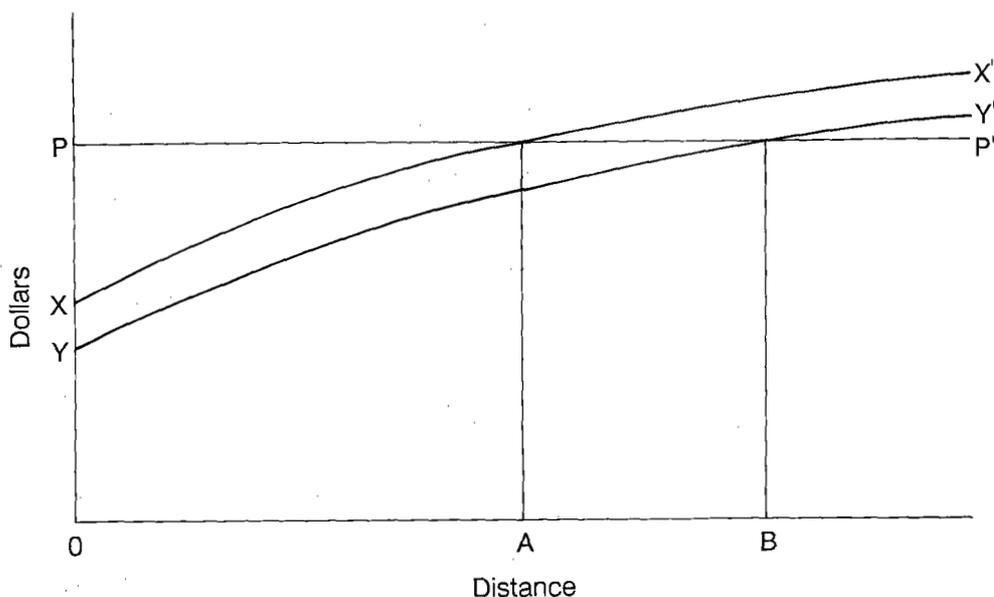


Figure 2.1 Effects of port improvements on maximum trading distance

since new goods and new trading partners may be involved, whether there is the substitution of one port for another or not. For Australian exports this elasticity is enhanced by vigorous competition from other sources (for example Brazil for iron ore, Canada for coal, New Zealand for dairy produce, meat and wool). It is by no means confined to the more limited circumstances in which Australian ports are substitutes for one another in the short run; and certainly not to the even more limited extents to which they can compete for exports from the same inland origin and imports for the same inland destination.

Such elasticities may be expected to increase as the users' knowledge of alternatives increases and as ports' reputations change. A further factor, probably discrete, may result from the long run decisions of certain large port users in respect of plant location. Thus, any substantial manufacturer will, from time to time, decide to open a new plant, or to extend or to close an existing one. This decision will probably be taken carefully and will reflect a number of factors, of which relative port efficiencies will be one. It may be taken without the knowledge of the port authority in whose hinterland it lies, though it may have an effect on its cargo throughput that is significant, sudden and long-term.

If the benefits of increased port efficiency were to be retained within the port, accruing to the factors of production employed there, then the result is not merely a transfer of incomes (or jobs) through the retention of benefits which would

otherwise have been passed on to the consumers of imports and the producers of exports: the extra benefits of increased trade will not appear at all and Australia will be worse off as a whole since it will not be exploiting the improvements in its comparative advantage.

The exposition thus far is partial and, as far as Australia is concerned, traditional to the point of obsolescence, for it omits all mention of the on-shore shipping costs which have recently become of major interest in Australia. Indeed, the 1986 BTE study nearly shows shore-based shipping costs (for wool) in Australia as being twice the level of the 'blue water' component of ocean freight rate to Europe. For Australian non-bulk trade in general shore-based shipping costs often amount to 5 per cent of the value of full container loads and 10 per cent of smaller shipments, the difference being largely accounted for by the costs of packing less than containers load (LCL) containers at container depots. There is no doubt that these costs are comparable with, and often greater than, the ocean freight rates on which attention has hitherto been concentrated.

In money terms these costs are in addition to those discussed so far and may include: packing and marking (and, for wool, dumping), land transport, storage, customs clearance costs, forwarding agency fees, port charges levied on the cargo and so on. Moreover, because ships are far bigger than land vehicles, some form of storage is necessary and has to be paid for. Again moving cargo takes time and during that time the goods must be financed, for example by a bank loan.³ Finally, and especially with a number of links in the transport chain, there is always the possibility of disruption, for example by natural or man-induced disasters, by business failures or by industrial disputes. As discussed in BTE (1986) greater perceived risks of disruption involve traders in holding larger stocks and thus incurring larger storage, insurance and finance costs; for goods subject to rapid technological or fashion changes (such as computers and clothes) there is also the risk of loss of demand.

In short, there are three distinct forms of cost involved in transporting goods: the money costs, the time costs and the risks. At various times and places any one of these may be dominant: but it is likely that all of them will be significant most of the time. It is remarkable that many Australian traders seem to regard the last as of greater concern than either of the others (BTE 1986); it is possibly the only country where this is so and this contrast seems to stem largely from the great perceived risks of delay in Australian ports. These three costs apply to any narrow definition of sea transport as well as to through transport, though only the first is easily calculated from data that is (or ought to be) readily available.

It follows that if any port authority wishes to encourage the flow of cargo through its port then it might wish to be aware of the absolute and relative importance of these three costs, at least in broad terms. There can be no question that their sum

3. Internal finance is, of course, equally significant, since otherwise the money could have been sent out or invested. Either way, therefore, it is the opportunity cost of capital that matters.

generally amounts to many times the amounts currently levied, upon ships and cargoes, within the system of port charges commonly used and which thus appear as revenues to the port authorities. It may thus be suggested that, because port authorities are public bodies and ought to act in the public interest, such analyses of aggregate cost, aggregate time and of risk ought to be made available to the public, possibly along much the same lines as have been shown, for money costs, in the 1986 BTE study. Certainly such calculations might be a valuable part of marketing a port's services and, if vigorously used on present and potential customers (the present marketing effort at Adelaide is an example) can hardly remain confidential. In this context it should be noted that the tendency for these money costs, or for aggregate transit times, to vary markedly around any calculated average is not an acceptable reason for avoiding the calculations: the prevalence, or risk, of such variations is itself one of the costs involved and may be shown as a frequency distribution and calculated by any of the usual statistical measures for deviations around a mean. Precisely the same response may be offered for suggestions that any other aspects of transport efficiency 'vary too much' for any average to be realistic.

CHAPTER 3 THE FUNCTIONS AND ORGANISATION OF PORT AUTHORITIES

IDENTIFYING THE RIGHT QUESTIONS

Before and after the Second World War, many public bodies were established or had their responsibilities extended in a wide variety of fields, seaports being no exception. Some of these public bodies were at national level, some at regional (State or province) level and some at local government (county or city) level. In different countries, port authorities can be found at all of these levels. For example, they are a national responsibility in Canada and in Israel. In Australia and most of the USA they are a State matter and in California, most of Europe and Japan they are largely a matter for local government, though with a good deal of involvement from other levels.

There is a similar diversity of practice when we consider what port authorities do. Some, as in Israel and Singapore,¹ are virtually comprehensive, doing all (or nearly all) that needs to be done within their port areas, including specifically the handling of cargo on the ships and ashore. Some go still further and operate terminals for other modes of transport: for example the Port Authority of New York and New Jersey operates airports and a bus terminal; that of Seattle operates the nearby airport.

Some port authorities, as in India and Thailand, handle cargo only on the quay, leaving shipboard work to be done by firms hired by the ship operators. Within Australia this is done only at Fremantle and then only for break-bulk general cargoes, that is, excluding containers. Still other divisions of functional responsibilities can be found. In Toronto, the port authority employees store and deliver inward general cargo from its 'place of rest' on the quayside. This was started at the request of the firms which had previously done this work and it is claimed that pilferage has been reduced to negligible levels. In Auckland the port authority supplies mechanical equipment and drivers for quayside work.

Many port authorities, however, do nothing related to the handling of cargo, having decided to act primarily as landlords. Many of those on the continent of Europe act in this way, as do most of those in Japan; instead they provide port facilities and

1. In recent years the Port of Singapore Authority has experimented with leasing berths to the private sector; the experiments having proved successful they have been extended in scope and in time.

lease them to private sector firms. Often the facilities will have been built at the request of the prospective tenants, to an agreed design, specification and for an agreed rent. The port authority will then concentrate on safety, structural integrity and ensuring a rate of return which satisfies its own financial constraints; and the tenant will concentrate on maximising the opportunities for operational efficiency. As noted in Chapter 2, Fraser Port in Canada provides a good example of this being carried to its logical extreme.

It is, therefore, useful to consider the appropriate degree of centralisation and decentralisation for the control of port authorities. Should they be regarded as national assets needing national control? Or should they be regarded as primarily local or regional matters? And, since this may be a false dichotomy, is there any sensible compromise? Whatever the answer may be, are there any functions which may best remain elsewhere?

It is also useful to consider the appropriate functions of a port authority. Is it best to choose a landlord system? Or is it best for the port authority to be directly involved in port operations like cargo-handling?

Bygones necessarily being bygones, these questions need to be considered in respect of the future. Thus, even if there were any detailed studies of the comparative efficiencies of ports having differing degrees of centralised control, or of involvement in port operations, changing circumstances might still render them of limited validity as guides to policies for the future. As noted earlier, there have been great changes in port technology, for both bulk and general cargoes; and there have been important consequences for industrial structure and the number of competitors, many of which have not been fully appreciated.

Ports, moreover, are not isolated from general trends, whether economic, social or political; and a noticeable tendency of recent years has been the number of studies (several are cited and summarised in Rees 1985) casting doubt on the wisdom of keeping the numerous public sector bodies described above and of having started them in the first place. It has, for example, been claimed that such official bodies, once established, tend to follow aims not specified in their constitutions or enabling statutes and that chief amongst these are their own survival and expansion; that their absence of contact with market mechanisms and of any equivalent to the profit motive renders them unresponsive to changing needs; that, the logical bases for controlling their finances being similarly insensitive to profit, they often become excessively expensive to the taxpayers; that the substitution of administered assessments (like annual reports) for any quantified response to customer needs (like sales) leads to their staff generally trying to please their superiors rather than the public they are supposed to be serving; that they are often dominated by one profession (doctors in hospitals, mechanical engineers in railways, civil engineers in water supply) who use this to raise their professional prestige; that they are frequently controlled by committees, which diffuse responsibility; that attempts to sponsor or regulate industries are often futile or perverse as well organised trade associations gradually capture the regulators; and that politicians appointed to control such bodies tend to hold office for too short a time to have any real effect,

are easily bamboozled by their own officials² or are mainly interested in furthering their own careers. Letters addressed to them, even by name, may be systematically intercepted by officials and referred either to the section against whom a complaint has been levelled or to a special public relations section with no executive powers. Thus, when people are correctly told, for example by junior officials at office counters, that the treatment of a problem is none of their responsibility and that they are merely doing their job, there may actually (as distinct from nominally) be no means whatever of rectifying the situation. Furthermore, in some countries, there is corruption as well.

Some of the proponents of this new position have gone so far as to turn the tables upon those who accuse them of being anti-egalitarian by pointing out that government departments and other official bodies often respond most readily to long-term, well-organised approaches, which are most effectively provided by the best public relations and legal firms; and that these are more likely to be hired by large businesses or producers' organisations than by consumers in general, trade unions or by groups of poor people. Thus, they claim, the process of 'regulatory capture' can itself be regressive. In short, while the growth of public sector bodies was based mainly on perceptions of the need to correct actual or probable market failures, with such familiar arguments as natural monopoly, externalities and public goods being adduced in justification, more recent attacks upon them have been based on allegations of the probability of government failure and with the optimal solutions being essentially pragmatic-except, of course, for the enthusiasts upon one side or the other of the controversy which has just been summarised.

One of the practical effects of these arguments, in many countries, has been the reversal of the earlier tendency and a movement to privatisation. Such previously public activities as telecommunications have been privatised in Britain and elsewhere, though still subject to a degree of official supervision as well as a very limited amount of competition. Nor have ports been exempt: the former British Transport Docks Board (controlling a disparate collection of ports previously owned by the British Transport Commission) has been privatised into Associated British Ports, with enhanced profits and considerable gains to their new shareholders. It is not at all clear that there have been any disadvantages in this last example of privatisation, though it should be noted that the matters to be covered in the next three sections of this chapter have generally been retained in public hands or are covered by the competitive positions of ports in Britain which, as noted earlier, is quite different from that in Australia.

It is, therefore, appropriate to precede any discussion of the questions of central versus local control of ports, and of the appropriate range of activities for a port authority by considering the question of whether port authorities, in the sense of a public sector body responsible for the general conduct of an individual port, with at least some degree of autonomy in its operations, a certain minimum of

2. The TV series 'Yes, Minister' and 'Yes, Prime Minister' have dramatised some of this and I can vouch from personal knowledge that some episodes are based on fact.

responsibilities to the public and publishing an annual report containing its accounts are necessary and, if so, why. It may be noted that this is by no means an irrelevant question in Australia, for while the major ports of New South Wales and of South Australia are all under public control (through their Maritime Services Board and the Department of Harbors and Marine respectively), neither of these States possesses port authorities in the sense just defined.

DO WE NEED PUBLIC PORT AUTHORITIES?

There are four topics to be discussed here.

Property rights

In the earliest days, when sailing ships were small, their goods were often ferried to and fro in small boats capable of working off beaches. Where the tidal range was sufficient the ships were sometimes beached and the cargo handled with the aid of carts driven alongside at low tide. Both methods are in use today and are relevant because they need no port facilities at all and, hence, provide no justification for a port authority. Elsewhere, however, substantial works are needed in the forms of breakwaters, quays and so on, and these necessarily extend into the water, often for long distances. In most countries, while territory may have a ready market, the aquatory (areas of water, and the water column and bottom beneath) cannot be bought and sold. There is no market because there is no legal recognition of exclusive property rights; and without these no one is likely to build anything at all substantial. Yet most port constructions need to be substantial if they are to be worthwhile and endure.

It follows that, for anything beyond the most primitive of ports and harbours, some public authority is needed to establish property rights in the aquatory. This may, of course, be a department of some other body, of a State government (as at Brisbane before its port authority was established) or of a city (as at Los Angeles); but it will be obvious that it has some special features, notably the power to construct substantial works extending where property rights do not usually exist, whether these are for its own operation or for leasing out to others.

Planning

Once the legal security for the works has been obtained it is necessary to decide where they are to be placed and how they are to be built. The problem is similar to that of determining the street layout and building lines for a new city. Often, there is a hydraulic regime of tides and currents to be considered; the first major port development at Melbourne, for example, involved realigning the river Yarra with the nearby Maribyrnong so as to use their combined scour to keep a channel open through what had previously been a swampy delta providing a depth suitable only for barges. Thus, much expensive lighterage was avoided to the great advantage of traders and (hopefully) the people of Melbourne. Similarly, the removal of a rock barrier at Fremantle enabled the whole of the inner port to be developed. This is a good example of the need to consider the development of the port as a whole, for

effects on the hydraulic regime in one part may well affect it in other parts; again the analogy with the planning of traffic in towns is obvious.

A remarkable example of the effects of the absence of any public body having responsibility for the planning of a major port was provided at Brisbane, where responsibilities were divided between the Queensland Departments of Harbours and Marine, Lands and Transport. This seems to have led to the excessive and unco-ordinated growth of private sector port facilities, most of which were seriously under-used³, and to the acceptance of excessive dredging costs, to which the generally high port costs were attributed. In 1970 the Port of Brisbane Authority was formed and this led, first, to one of the most thorough port planning exercises undertaken in Australia and, second, to the construction of new and much better facilities on Fisherman Island at the mouth of the river. (It was hoped that the dredging costs could then be avoided, but this did not occur.) There can be little doubt that the people of Brisbane and of Queensland generally would have benefitted greatly if a port authority had been established much earlier.

Public goods and externalities

The traditional definitions of public goods and services are those where it is arguable that they will not be provided sufficiently, satisfactorily or at all by market mechanisms; in other words there is market failure. Sometimes it has been assumed from this that such goods and services must be provided directly by public bodies; but this does not follow because private sector contractors may well be employed by the State, for both construction and subsequent operation, being selected by competitive bidding on any basis (which may take non-financial factors into account through a 'scoring' system) that may be thought appropriate.

Within the context of seaports there are two arguments for public or collective provision. First, there are those activities which serve the port as a whole (or some large part of it) and which are unlikely to be satisfactorily provided in any other way. Examples include main breakwaters, such navigational aids as lights, leading marks, buoys and beacons and the dredged entrance channel. (Relevant instances at Melbourne and at Fremantle were cited previously) All of these are likely to benefit the port as a whole. No individual port user is likely to provide them because they will benefit his competitors as much as himself. We thus have the classic case, in the context of public goods, of joint or non-rivalrous consumption, similar to such well-known examples as defence and the maintenance of law and order. One may, of course, envisage the formation of a club of port users to provide them, but membership would have to be compulsory (to avoid the problem of 'free riders') and it might well turn into restrictive arrangement or cartel, like the medieval Hanseatic League in north European waters or certain port employers' associations operating de-casualisation schemes but also excluding competitors by limiting

3. The permanent existence of unexploited economies of scale is, of course, consistent with the economic theory concerning the long run position likely to be taken by firms having a limited amount of competition.

entry. The latter is likely to be even more objectionable than a monopoly in the provision of port services, since whilst both would probably be exploitative, and to much the same extent, a monopoly in port facilities might secure some economies through central co-ordination and the rationalisation of its activities. (This topic is discussed in the next section.)

Another way of expressing this is to say that these particular port facilities, unlike those involved in cargo-handling, have the characteristic of zero marginal cost. That is to say, their costs are not at all affected (at least up to the point of obvious congestion) by the number of ships making use of them. They are thus similar to other well recognised public goods such as street lighting. Indeed, the lighthouse is one of the standard examples commonly cited in this context (see Coase's famous article, 1974 and Goss 1984, for some comments thereon). Essentially, the argument here is that if an increment of consumption costs nothing then no one should be deterred from consuming it by having to pay for it. This argument does not, however, apply to all goods and services which are likely to be collectively provided within a substantial and efficiently managed port: for there are also those which involve externalities.

One of the classic externalities, in the sense of significant economic effects extending beyond the financial accounts of those directly responsible for them, is pollution. In ports this may occur through spilling oil or garbage into the water, in the air through smoke or dust or through an objectionable level of noise. Visual intrusion into the landscape has also been cited as a form of pollution (Rendel & Partners 1976). Rules, and penalties for breaking them, may need to be enforced in the interests of both port users and others (for example bathers, surfers, yachtsmen and nearby residents). Other potential externalities in ports may consist of wrecks blocking channels (they may need to be removed quickly) or inefficient or negligent ship-handling. Appropriate rules may again be needed, since the advantages of, for example, pilotage may extend beyond the safety of the ship being piloted to the safety of others nearby; since marginal costs are not zero for these activities, however, it may be appropriate for charges to be made. If so, then the various activities concerned may be made into profit centres for purposes of management control.

Externalities may also extend beyond the confines, and indeed the direct interests, of the port. The location of new port facilities away from a congested city centre (as from London to Tilbury, from Bombay to Neva Sheva or from Port Jackson to Botany Bay) is a matter in which the city and regional transport planning authorities are likely to take a keen interest, since it is likely to affect traffic levels and patterns both for goods and for journeys to work.

Promoting port efficiency

A fourth reason for having public sector port authorities is that they may develop the port's efficiency. This statement may seem so obvious as to be superfluous, but many port authorities do not recognise any such general responsibility; and for

reasons which will be discussed in this section its importance has been greatly increased in recent years.

Consider, first, a seaport with a number of competing firms offering such services as may be needed by way of cargo-handling and so on, and given a static technology. There are two reasons why competition may be reduced: the existence of economies of scale and the desire to reduce competition.

With the traditional break-bulk techniques of cargo-handling little capital equipment beyond some forklift trucks, trolleys and tow-motors were needed, and all of those could be hired from specialist firms. The quay was provided by the port authority, as were the cranes (though in Australia it was more usual to use the ships' gear). In these circumstances a stevedoring firm was therefore highly labour-intensive, often with so varying a level of activity that it traditionally hired and fired the men it needed by the day or shift through a call-on or shape-up system (which sometimes included unofficial kickbacks to the foremen). There were then no economies of scale in technology or operations and there were probably some diseconomies of scale in management. Hence, many such firms were to be found in any large port. Nevertheless, the temptation to suppress competition by forming price or cartel agreements must always have been present, as with the tendency to monopolise through mergers. Potential competition associated with low barriers to entry must have limited these effects, though the advent of decasualisation schemes operated by exclusive employers' associations with trade union agreement will have relaxed this deterrent.

The economic results of the technological changes described in Chapter 2 have, however, probably been much more important than any such unintended effects of decasualisation. For, while formerly there could be many competing stevedoring firms, now there is room for only a very few and competition is correspondingly reduced. For example, there are currently only three container terminal operators in Sydney and two in Brisbane. Fremantle also has two container terminals but both are controlled by P & O. The necessity for only a few operators can concern the port authority, partly on monopoly grounds and partly because the control is from overseas. In a vertically integrated company like P&O it is not always the case that the components are optimised separately: such a component as an overseas container terminal may be operated so as to enhance some other, perhaps larger, part of the organisation and situated outside Australia. It is unlikely that this will even be publicly known, let alone justified.

At some other ports there is only one container terminal and for the very good reason that there is only room for one. Container terminals are large and expensive; and like most capital intensive activities they need to be worked intensively if their full benefits are to be achieved. As with the consideration of cartels, the existence of 'reasonable' profits is no defence for essentially high cost solutions, even if there were satisfactory evidence that profits were reasonable (a subject on which those making such claims are noticeably coy). To attempt to reproduce the previous situation by encouraging the over-building of container terminals, so that all have sub-optimal throughputs, will certainly be expensive and probably futile. It will, in

other words, tend to ensure that port costs are higher, and the benefits to port users lower, than if there were fewer terminals being operated efficiently.

The need for only one or two terminal operators, therefore presents port authorities with a new and important problem; and it is one for which they may have little relevant experience. One 'solution' is to ignore it as being outside either their statutory or their customary responsibilities, or both. An example of this is implied in the absence of port authorities from the proceedings of the former Prices Justification Tribunal in 1977.⁴ There were two reports concerning port matters from that body.

In one of these reports (Prices Justification Tribunal 1977a), the substantial stevedoring firm of Patricks claimed to be competitive, efficient and to make only reasonable profits, which needed to be maintained by general price increases following an award of increased wages to their employees. The Tribunal, which consisted of a lawyer as Chairman and several experienced businessmen, felt that Patricks were price leaders in a narrow market secured by barriers to entry; that their monitoring of costs, productivity levels and their management reporting systems generally fell far short of the standards to be expected of a major company; that total payments to directors (including a \$A613,650 commission to one of them) ought not to be regarded as costs for price justification purposes but added to the declared profits; that Patricks were inflating their charges and profits by using industry-wide overheads instead of their own, which were lower; and that neither the good pay and conditions of their employees nor the levels of idle time and disputes tended to support the picture of a highly competitive industry. In an unprecedented judgement the Tribunal not only rejected the application for an increase but ordered that some of Patrick's charges be reduced by 5-6 per cent within a week.

The other report (Prices Justification Tribunal 1977b) involved the existing level of charges by Seatainers, which had risen steeply (by some 36 per cent annually from 1969 to 1974). The Australian Shippers' Council maintained in evidence that in the 18 months to mid-1975 Seatainers' loading charges had risen by 84.5 per cent and, whilst labour costs had risen by 74 per cent and these represented three quarters of Seatainers' costs, this left an unexplained increase of 116 per cent in the non-labour content. The Tribunal discovered from Seatainers' own evidence that their price revision methods were essentially prospective rather than retrospective or current and thus involved adding to their charges cost increases they had not yet experienced. The Tribunal disapproved of this and pointed out that some forecasted cost increases did not take place and that there were never any allowances for the economies or efficiency improvements which might follow cost increases. They discovered that, despite the significance of labour in their costs, Seatainers had no standard means of monitoring labour productivity by such indicators as boxes or tonnes per man-hour, revenue per man-hour or using value added and were unable to make meaningful comparisons with overseas terminals.

4. These may be 10 years old, but they provide one of the very few opportunities which the businessmen concerned have had to justify their proposed prices.

The Tribunal thought that better measures of productivity would have been useful in industrial negotiations. They also felt that Seatainers' practice of giving discounts to shareholders (which had not hitherto been known to the Australian Shippers' Council) so resembled a distribution of profit that the substantial sums involved ought to be added back and that, on this basis, profits had been very high indeed in recent years. Again, price leadership seemed to prevail, with Seatainers as the leader. Again, therefore, the Tribunal considered some charges ought to be reduced.

The point of summarising this well-known story is not simply to stress that these events took place in major Australian ports: it is to point out that the port authorities did not concern themselves in the topics, neither as the problems became increasingly evident, whilst the hearings were progressing, nor subsequently. Indeed, in 1978 the then head of one port authority considered the whole business of the Tribunal's findings in respect of his tenants amusing; and certainly no concern of his.

There are advantages to a port in taking such a position of having no responsibility in this area: no extra costs or burdens fall upon the port authority, which maintains a concentration upon its traditional activities. No conflict arises between its (possible) roles of marketing and promoting the port, together with its tenants, and policing them. The port authority may, therefore, enjoy a (fairly) quiet life. This is, in other words, equivalent to the 'minimalist' strategy discussed in the next chapter of this paper, which also outlines some other strategies.

In Chapter 2, however, it was argued that economic welfare is greater if the benefits of improvements in the efficiency of seaports are diffused widely rather than retained within the port. Consequently, it may be argued that if there are observable tendencies, supported by specific studies, for these benefits to flow to the factors of production (capital and labour) employed within the port then it may be worth employing some resources to improve this in order to ensure, first, that the port is operating in an economically efficient manner and, second, that the benefits of this are being passed on to the importers and exporters.

NATIONAL VERSUS DECENTRALISED CONTROL OF PORTS

As noted earlier in this chapter, there are wide variations in the extent to which ports are controlled by national as distinct from regional (in Australia, State) or local government bodies. In Canada, for example, the Constitution provides that shipping and navigation, and thus ports, are Federal responsibilities. As far as ports are concerned these responsibilities have sometimes been exercised in a somewhat perfunctory fashion; for example the 1932 Gibbs Report found a quite inadequate staff in Ottawa, and in the 1960s the cities of Halifax, Nova Scotia and Saint John, New Brunswick were so incensed at what they considered to be a serious lack of marketing effort that they established and financed 'Port Commissions' to secure increased trade for ports they could never own, but whose activities formed an important part of their economic life. Despite the existence of central responsibilities there has been no enforced uniformity of organisation; in fact there have been two

parallel systems of port administration, with differing degrees of Federal involvement (and, for fishing and minor ports, still others which are not explored here).

The first of these, covering 15 ports ranging from substantial places like Halifax, Montreal and Vancouver to those which are little more than waterside grain elevators like Port Colbourne, Ontario and Prescott, Ontario, formerly came under the control of the National Harbours Board. Following the Canada Ports Act 1982, they were placed under the newly-created Canada Ports Corporation. Several have since been made into local Port Corporations, with considerable delegation of powers. It is not, however, clear that there is any effective co-ordination from the centre, let alone port planning at the national level.

The 1982 Act did not touch the harbour commissions, which are the second form of port administration in Canada. Many of these (Toronto is an example) operate under their own statutes: some under the Harbour Commissions Act of 1964. Generally, however, the pattern is that of a body which, whilst remaining an arm of the Federal Government, is controlled by a board of Commissioners, most of whom are local businessmen supporting the party forming the Federal Government. The permanent existence of unexploited economies of scale is, of course, consistent with the economic theory concerning the long run position likely to be taken by firms having a limited amount of competition. Government and which is autonomous for most purposes. Thus, whilst their annual reports are addressed to the Federal Minister for Transport and they must seek his authority for all major developments, they will be expected to finance it themselves (for example by retained profits or by borrowing from a bank) and will generally receive his permission unless there is some possibility of the development becoming a burden on the (Federal) taxpayers. Again, there is no mechanism for co-ordination either nationally or, indeed, with nearby ports under the Canada Ports Corporation. Thus, for example Fraser Port was allowed to build a container terminal because it wanted to do so and could service the debt but regardless of the effects on the Port of Vancouver some 15 kilometres distant. Nor did the Federal Government query the traffic forecasts, which turned out to be seriously exaggerated.

In the USA, on the other hand, ports are a State matter, though with significant Federal involvement, for example with the Army Corps of Engineers having responsibility for navigable channels, the Coastguard being concerned with safety matters, including navigational aids, handling hazardous cargoes and vessel traffic systems (VTS) management, the Maritime Administration conducting surveys of port needs and potential and the Federal Maritime Commission having powers to disapprove ports' tariffs and leases. All of these represent substantial efforts, including the last, where objections from rival ports may lead to several years of legal argument. Otherwise port ownership, development and operation is largely a matter for the individual states resulting in a variety of practices. In Seattle and Tacoma (Washington) the port authorities levy property taxes to support their operations. The Maryland Port Authority (controlling Baltimore) has published detailed costs, revenues and discounted cash flow (dcf) results for proposed investments. In California the state's powers have been delegated to municipalities,

who thus provide even greater diversity, except on port charges where they have organised a cartel.

Many other examples of diversity could be provided, within unitary as well as federal States; but it is clear from the above that national responsibility for ports does not necessarily involve uniformity or detailed bureaucratic control. Nor does local responsibility preclude the national government from becoming involved in a variety of activities in and around ports.

In considering the optimal involvement in an Australian context, it is relevant to consider both the advantages that the Federal Government involvement might have over State involvement and also whether these are sufficient to warrant any significant change. It seems that there are two advantages which are discussed in the following sections.

Comparability

Since many port users have choices to make, it is clearly useful if the comparisons are easily made. Thus, standard forms of port information could be specified. These might include standard definitions, statistics and forms of accounts (as the International Civil Aviation Organisation does for scheduled airlines). It might also include standard definitions for port charges - though this certainly does not mean uniformity of their levels.

Given these, and an expanded interest of port authorities in promoting their own efficiency and that of their lessees or tenants, it should be possible for potential, as well as current, port users to make systematic comparisons of port efficiency, not through any single measure but item by item. Indicators provided for such purposes might include those of the total cost and time for each of the various commodities to pass through the port, indications of their more important components, like cargo-handling cost and ship turnaround time, together with appropriate indicators of the variations about mean values. It is true that individual ports could do this themselves, but without some central co-ordination it is most unlikely that they could or would do it on bases sufficiently uniform for proper comparisons to be made. It should be noted that comparisons of the cost of a ship-call are inadequate, since they omit many factors (like wharfage) not paid by the ship operator.

Co-ordinated planning

In the light of modern port technology, it must be recognised that, for most commodities shipped either in containers or in bulk, the minimum sensible increment to a port's capacity is very large. It must therefore be expected to have a correspondingly large effect upon the economics of competitors within the same port and also at other ports. The large distances between Australian ports and their correspondingly distinct hinterlands do not make this irrelevant, as was demonstrated in 1968, when the European Conference lines' decision to concentrate their new container services on Fremantle, Melbourne and Sydney had major effects on the general cargo trades through, for example, Adelaide and

Brisbane. The general cargo facilities of Adelaide were left largely vacant, though the effect on Brisbane was modified by the growth of trades with the Pacific rim. Similar examples could be cited from the bulk cargo field.

It may be argued from this that such major investments as container and bulk cargo terminals may best be considered from the point of view of Australia as a whole rather than from that of the port (or State) within which they are situated. If this is not done then the effects of increased trade at the one location may be included but the effects of reduced trades at the others will not. Thus, the absence of such co-ordination would lead to excessive investment at too many ports and a waste of valuable capital; it is at least arguable that this has occurred with container terminals in Australia and elsewhere. It is, however, all too easy to assume that because such a case exists it is necessarily conclusive. Such an assumption ignores three arguments to the contrary.

The first of these is that any such element of co-ordination tends to reduce that of competition. Yet it is the effect of competition on the three great elements of the cost of moving cargo through a port discussed in Chapter 2 (money, time and the risk of disruption) that helps to maintain ports' efficiency levels.

The second is that the argument assumes that the co-ordination can and will be done. Yet it is a long time since Wilson (1972) argued that the necessary forecasts could be produced using production-constrained gravity models and systems analysis using Lagrangian methods on the basis of traffic forecasts 'agreed' between the ports and some central planning authority. In this time major changes have taken place in traffic flows, technology and productivity which are unlikely to have been forecast accurately, whether 'agreed' or not. During that time, moreover, there has been a significant growth of scepticism concerning the overall utility of centralised co-ordination, whether employing the techniques described by Wilson or any others. Amongst the more obvious difficulties are those of agreeing trade forecasts between competing ports without negating the competition.

A certain amount of evidence on the subject may be derived from the activities of the former National Ports Council (NPC) in Great Britain. This was established following the 1962 Rochdale Committee Report on Ports and given statutory duties which included producing national ports plans and advising the Minister for Transport on whether he should permit major port developments. Its various publications, however show no record of developing port planning techniques and, given that the Council consisted largely of the heads of the major ports, such efforts as its publication 'Port Development: an Interim Plan' seem to have represented no more than the summation of the individual port's wishes on a basis of mutual back-scratching. No list of priorities was established, despite conflicts between port development proposals. The Council never advised the Minister against any major investment - even the one ('Portbury', a new dock near Bristol) for which permission was refused; though ultimately (and most reluctantly) it was granted for a smaller project which has proved a considerable burden on Bristol's ratepayers ever since. NPC nevertheless came to be regarded by the ports industry as excessively expensive (they paid for it through a levy); it was abolished in 1981, its residual

functions being divided between the Department of Transport and the British Ports Association. There is now no national planning or development authorisation system for ports in Britain.

While the NPC introduced a much-improved system of port statistics and some investment appraisal systems within ports, the former were never developed into efficiency indicators and the latter were strictly limited to the discounted cash flow type, ignoring both externalities and interactions between ports and also assuming that the ports' pricing systems were socially optimal. Cost benefit analysis, which might have proved more useful (for example by including benefits to port users) was never attempted, though a certain amount of work had been done in that direction and was available to the NPC.

In other countries more work has been done. In the USA the Army Corps of Engineers used to produce cost-benefit ratios of proposals to deepen navigable channels, though none have been authorised in recent years and some of its work has been heavily criticised. The World Bank has done much more, as Grosdidier de Matons (1986) has described, and has certainly done it much better: but, whatever may be done to make development of individual ports more economic and effective, the problem of assessing the interaction between different ports is much more difficult. Moreover, as de Matons points out, where a port project has something else (a power station, say, or a coal mine) dependent upon it, the rate of return for the port component in isolation may be of little significance. Yet ports exist to provide services for other industries and one of the problems for the NPC staff was that of planning ports for an essentially unplanned economy; it is scarcely surprising that they found it difficult.

The third argument against the co-ordination of port investments is that some kind of official co-ordinating agency will be needed; it will certainly need a staff and may well come to have a life of its own, subject to all the disadvantages of bureaucracies outlined in the eighth paragraph of this chapter. Moreover, unless it is a centralised agency of control for all purposes, not merely the major investments under discussion, it may well be difficult to define its responsibilities with respect to the ports. If the port authorities are to compete then they must publish their own accounts. But how can the central body be responsible for authorising major investments if it has no responsibility for their financial results? Is not the combination of administrative centralisation without effective co-ordination the worst possible arrangement?

If, on the other hand, it has financial responsibility for the ports' operations then experience (for example, under the former National Harbours Board in Canada, under the Israel Ports Authority and under the Maritime Services Board of New South Wales) suggests that there will be a uniformity of charges, regardless of the levels and patterns of demand and cost in the various ports. This is not a necessary result, but it is certainly a common one in practice.

The case for co-ordinated planning of port developments, therefore, depends upon a judgement that the benefits of this (reducing the waste of valuable capital inherent

in having too many port facilities) will actually be achieved, despite all the difficulties; and that they will exceed both the disadvantages of reduced competition and increased bureaucracy in the management of ports.

In case this should present a false dichotomy, the next chapter presents some suggestions for ways in which the Federal government might attempt to improve matters without either a large bureaucracy or taking centralised control of ports.

COMPREHENSIVE VERSUS LANDLORD PORT AUTHORITIES

It was noted earlier that, despite the essential similarity of the technologies employed, there is much variation in the extent to which port authorities are directly involved in such central activities as cargo-handling. It is as easy to attack this on doctrinaire grounds as it is to support it; examples of efficiency may be cited generally and for each extreme position. Antwerp and Rotterdam are highly successful ports where all cargo operations are performed by private sector firms who have leased berths or terminals from the port authority; Hong Kong is another: but Singapore, which has the reputation of being one of the most efficient ports in the world, is very largely comprehensive in the sense that most cargo-handling is done by employees of the Port of Singapore Authority. It was noted earlier, however, that they have been reducing this proportion in recent years.

It seems likely that the efficiency of the Port of Singapore owes a good deal to the perception of competition from the nearby ports of Thailand, Indonesia and Malaysia, for which it has had a long-standing position as an entrepot. Though the ports of Israel, which are comprehensively operated by the Israel Ports Authority, appear to be efficient (and are certainly profitable) relations between Israel and its neighbours prevent any competition between their ports; nor is there much competition between Israeli ports since each tends to serve a different part of the country (Haifa the north, Ashdod the south and Eilat the Red Sea) and they all charge the same prices. Elsewhere, as in parts of Africa, comprehensive port authorities do not have a very high reputation.

Such a range of experience, including the numerous intermediate positions, may make one wary of generalisation; rather, one may prefer to be cautious and to suggest that whatever is done should suit the history, constitution, culture and above all the customs of the country concerned; and that, considering the costs of large-scale re-organisation, such changes should be introduced only after careful consideration. It may, of course, be argued that the changes in industrial structure associated with high-productivity port technologies involve such constraints upon a hitherto successful regime of competition that an expansion of port authorities activities into cargo-handling is desirable. This is one of the strategic options discussed in Chapter 4.

CHAPTER 4 OPTIONS FOR THE FUTURE

INTRODUCTION

The earlier chapters having reviewed the general considerations involved in selecting strategies for Australian seaports, this chapter concentrates on four distinct approaches which might be adopted, some of their advantages and disadvantages, and their implications for port authorities and other bodies in Australia. Two further sections are then devoted, respectively, to industrial relations and to port authorities and their relationships with other bodies. To be realistic and useful, however, this discussion must allow for the existing position in Australian ports.

There seem to be very few who would accept that the operational administrative or functional efficiencies of Australian ports are generally satisfactory. In addition to the studies and reports mentioned earlier there is a considerable volume of criticism from such representatives of port users as the National Bulk Commodities Group and the National Farmers' Federation, both of whom complain of undue and unexplained expense, delay and uncertainty in the movement of cargo through ports. These criticisms range from such modest matters as the allegedly excessive expense of gangway watchmen through the cost and excessive use of tugs to more important matters such as allegations of overmanning and the high cost of employing waterside workers. There is also a significant chorus of complaint from within the ports industry, that is, of one part blaming others for various forms of bad planning, mismanagement, inefficiency or overcharging. Some of this is published, for example, in the journals or annual reports of the organisations concerned; more may be heard in the course of such interviews as were undertaken for this study. Indeed, it may not be too much to suggest that the time is ripe for some new initiatives and that these would be the better for being based firmly on an explicit consideration of the right strategy for Australia.

Since the reasons for having port authorities, as generally understood and within the public sector seem convincing and since there appears to be little desire in Australia to alter matters, it will be assumed that they will continue to exist and, in most States, in much their present form. Similarly, it will be assumed that the individual States will continue to be primarily responsible for them. The four strategies outlined below are distinct in that they represent contrasting approaches to the problem of improving the efficiency of Australian seaports; but, just as each is capable of greater elaboration than is possible here, so it would be possible to combine certain parts of them. Further elaboration and development of detailed

blueprints for action, like the basic decisions on which strategy to adopt, must be for Australians.

STRATEGIES FOR PORT AUTHORITIES

The strategies may be characterised, after the attitudes they imply, as the 'Minimalist', the 'Pragmatic', the 'Public Service' and the 'Competitive' strategies. The following four sections of this chapter are arranged in that order because some parts of the argument may be seen to follow from one another when presented in this way. Hence, even those who find themselves immediately attracted by one or another may find it helpful to read them consecutively.

The 'minimalist' strategy

The 'minimalist' strategy is essentially one in which the port authority provides, or takes the lead in facilitating, the establishment of property rights extending into the aquatory, overall port planning and the provision of public goods (like breakwaters, dredged entrance channels and very probably some navigational aids) within the port area and its approaches. However, it leaves cargo-handling and all other operations, together with the general efficiency of the port, to the care of the private sector in the shape of stevedores, tug operators, ships' agents and so on. It might be argued that this strategy has been followed by most Australian port authorities until recently. The rationale behind it is that such firms work in competition, which assures efficiency. (Such a rationale may often have been implicit rather than explicit and especially where port authorities concerned themselves more with technical efficiency than with the cost of moving cargo through their ports.)

Such a port authority might or might not pay for the construction of other port infrastructure like quays, jetties and docks; it might go further and provide some buildings: but it is most unlikely to concern itself with the superstructure of cranes or mobile equipment. It will generally play no part in commercial or industrial relations matters except where its own contracts or employees are concerned. It may well produce statistics of cargo throughput: it is unlikely to produce any indicators of the port's efficiency, whether of gross or net outputs (value added), costs, or of crane, quay or manpower productivity levels. Indeed, it may not even know how many people work in its port, considering such matters to be none of its business.

In this it may have at least the implicit support of the firms operating within its area and who may have no wish to have anyone enquiring into their operations and making comparisons which may - who knows - be to their disadvantage. Such a reluctance to facilitate factual comparisons is generally a feature of the product differentiation commonly found in oligopolistic markets. It is found in the salesman's concentration on subjective factors, for example in the slogan 'sell the sizzle, not the steak'. The problems in overcoming it parallel the difficulties experienced in developing modern consumer protection measures, for example in getting the

ingredients of edible goods listed, car fuel consumption figures advertised on comparable bases and restaurants to display price lists.

Resistance to regulations aimed at improving such matters may be justified when there are many competitors, negligible barriers to entry and a high degree of consumer expertise. As far as seaports are concerned, neither of the first two conditions are likely to be satisfied for reasons discussed in the previous chapters of this Paper. Resistance to even the development of comparative efficiency indicators is likely to be strengthened if the same port operators (like stevedores) provide services at many different ports.

In the USA and many other countries a 'minimalist' port authority would usually be responsible for financing and constructing the infrastructure of the port and probably for leasing it out, by prior arrangement, to firms wishing to provide these services. One reason for this is that most ports (and other public bodies) in that country may issue bonds on which the interest is free of State and Federal income taxes. They are, therefore, attractive to people paying higher rates of income tax; and, for any given level of creditworthiness, the interest rate may be correspondingly low. This effect has recently been cut by the sharp reduction in the higher personal tax rates in that country, but the effect remains interesting as an extreme example of ways in which a public body may raise capital on terms more favourable than the business to which it then leases the resulting assets. As the rental agreed is not usually the result of competitive bidding, but related to the accounting cost of building and finance (and the port authority's financial constraints), this involves passing on the borrowing power, or creditworthiness, of a public body on to a private one. The latter may, or may not, pass these benefits on to its own customers according to the competitiveness of the environment in which it is operating. If there is little competition then it may well be able to retain those benefits.

Although such arrangements may have the advantage of reducing accounting costs, the economic costs remain unchanged: for neither the riskiness of the particular project nor the opportunity cost of capital have been affected. There is, therefore, the danger of systematic over-investment, not merely in the obvious and physical sense of having valuable port facilities standing idle for much of their time (which is common enough, in Australia and elsewhere), but in the economic sense of tending to extend the port's investment programme into the subeconomic area, where the net benefits of each year's marginal investment are less than its marginal cost. If the port authority has any such financial ground rules as 'covering its costs' after depreciation and interest, or of seeking some given but inadequate rate of return (that is, less than the opportunity cost of capital) then this danger is likely to become fact. Here, as elsewhere, whether a port makes accounting profits or is able to finance part or all of its investment programme is not very relevant; and matters will, of course, be worsened if there is any significant rate of inflation and if the depreciation is allowed on a historic rather than a replacement cost basis.

Despite all the changes in industrial structure which have followed from the increases in berth and labour productivities associated with the new port technologies, this 'minimalist' strategy has certain advantages: many people (and

especially those with little faith in co-ordination) will see the dispersal of decision-making as likely to raise its quality; and minimal public activity will probably be associated with minimal burdens upon the taxpayers. Indeed, it can easily be demonstrated that many Australian port authorities have presented no direct financial burdens upon taxpayers (BTE 1986); though whether they have led to unnecessary burdens upon their users is another matter. Since the basic rationale of this approach is the reliance upon competition, which may seem out-moded, it also has disadvantages.

The 'pragmatic' strategy

The pragmatic approach consists of recognising that there are inadequacies and inefficiencies in Australian ports, and in the movements of goods to, from and within them, identifying these faults and then trying to put them right. It is distinct from the 'minimalist' strategy in that it may involve a wide range of activities for the port authorities, frequently in conjunction with others. As one whose principal aim may be the efficient movement of cargo, and whose financial position is usually sufficiently secure for such activities to be taken on without the prospect of directly increasing its own earnings, the port authority may often be the most appropriate body to take the lead, though it may sometimes fail to recognise this. One of the recommendations of the Webber Report (Task Force on Shore-based Shipping Costs 1986) was that port authorities should extend their range of interests and activities in this way.

This approach is distinguishable from the following two strategies by its essentially ad hoc nature. It can be as comprehensive or as limited as those participating in it may wish; and it avoids all charges of dogmatism, or of following fallacious theories, by having no underlying principles at all. It simply involves a number of people getting together and discussing how to deal with some practical problems.

It therefore has a number of advantages. Amongst them may be the mobilisation of knowledgeable people to give advice, and of simplicity, directness and flexibility in both scope and timing, since the approach is well-suited to dealing with the unexpected. The approach is, moreover, particularly appropriate when, although it may be clear that something is wrong, the principles involved are quite unclear.

It has, however, a number of disadvantages, of which the most important may be the failure to enquire why all the evident faults came into existence in the first place; and why they should have continued. Second, although this approach depends essentially upon achieving a consensus, it provides no mechanism for disciplining the recalcitrant. Thus, one important participant may deny both the existence of some particular fault and the validity of data with which it could be demonstrated to exist; and this will be particularly difficult to deal with if he has powerful support from other interests. Like official bodies who claim that they could do their job much better if only they were given more resources (and without ever reckoning the effects upon the taxpayers), the participants in such discussions may blame any faults which are so obvious as to be undeniable upon parties or forces beyond their control. Thus, for example, the Australian subsidiary of an overseas firm may claim

that some practice or policy is forced upon it by a far-off head office which it has already tried to persuade; it may even invite the sympathy or support of others present. Alternatively (though this is less common nowadays) it (the Australian subsidiary) may actually have very little discretion and conceal this for fear of losing prestige. Or a trade union leader may seek to postpone discussion until after an impending election; and then repeat the tactic. Finally, a consensus achieved amongst interested parties may be jointly exploitative rather than in the public interest.

The most that State and Federal authorities concerned with the efficient movement of Australian overseas trade could do under this strategy would be to facilitate discussions, for example, by establishing fact-finding bodies or by using their prestige to bring estranged parties together. The production of statistics and research (for example, establishing the practicability of a variety of efficiency indicators) might help, as might technical assistance for training in management and industrial relations and joint management-union visits to ports in other countries. Such activities may well be marginally helpful, though it is equally possible that some disillusionment will set in.

Although much may be done under this strategy, it is unlikely that it will secure the lasting improvements which seem to be needed without a change in basic attitudes. It may be thought that this is unlikely without some principled understanding being provided as the basis for a planned series of actions.

The 'Public Service' strategy

It was argued in Chapter 3 that ports involve establishing property rights in unusual circumstances, a need for systematic planning of individual ports (if not of port systems for whole countries), public goods, externalities and the promotion of port development and efficiency. It had earlier been argued that the economic welfare of Australia would be greater if the benefits of improvements in port efficiency were passed on to importers and exporters rather than retained within the ports. Thus the promotion of port efficiency needs to be in the public interest: not in the interest of port operators, whether as employers or workers.

It is obvious that these are amongst the most commonly-considered reasons for public intervention on a large scale and the case for this is strengthened if, as is evident from much of what has gone before, there is a markedly reduced case for relying on free competition. It is not many years since such a case would have been widely regarded as very strong. In many countries it would have fitted well within a paradigm in which seaports, like airports, roads, railways and an education system

are regarded as such essential factors in economic development that they cannot safely be left to the private sector.¹

For reasons discussed in the preceding chapter this is currently a less popular position. In many countries activities hitherto thought to lie naturally within the public sector have been re-examined and, sometimes, transferred to the private sector, often with some residual public sector involvement or supervision. It is much too early to see how far this tendency may go, whether public supervisors of private corporations with little competition (telecommunications, say) can avoid being outmanoeuvred, or whether some parts may need to be reversed: but there is no doubt of the popularity of this policy amongst users as well as amongst the profit-seeking entrepreneurs who have taken over some previously loss-making public activities.

Were this more recent tendency to be ignored and the original argument to be applied to seaports in Australia then there would be a systematic move to widen the involvement of the port authorities in the operation of their ports, specifically into cargo-handling but probably into such other activities as the supply of tugs. They would tend to become 'comprehensive' port authorities.

Essentially, the argument for this depends on the belief that the virtues of public control will, by comparison with private business, outweigh the disadvantages in this context. The effective establishment of property rights, systematic planning for port expansion² and the generally successful provision of such public goods as navigational aids and oil pollution measures are all examples where credit should be given to the port, maritime and other public services in Australia. It may, of course, be suggested that none of these represent successes in a commercial sense or in a fully competitive context: but those services have not been expected to produce that kind of success. Nor, a protagonist for this view might suggest, have they ever been given the chance. Rather, they have been expected to contribute to the commercial success of others; and there can be little doubt that, in this, they have succeeded.

Because there are no comprehensive port authorities in Australia it is necessary to look elsewhere for examples; and, since the developing world generally faces quite different problems, it is necessary to look to developed countries. Within these, Israel and Singapore provide examples of comprehensive port authorities.

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1. In some countries this is carried to such extremes that no attempts are made at formal investment appraisals of seaports on the grounds that the benefits are so diffused as to be incalculable. Experienced cost-benefit analysts will recognise this as a risky procedure and, indeed, it is arguable that a failure to consider demand levels adequately has led to the construction of many kilometres of quays which have remained seriously under-used, and at considerable cost to the taxpayers.
 2. The post World War II opening of a channel to Cockburn Sound off Fremantle and the development of Botany Bay may be added to the remarkable successes of the public sector cited earlier from the 19th century.

In the former, the ports are controlled by the Israel Ports Authority which maintains a uniform charging system, regardless of differences in demand, costs or anything else between its three ports. It has a rather mixed record on industrial relations. Whilst its investment appraisal techniques are extremely thorough, circumstances have prevented there being any competition between Israeli ports and those in neighbouring countries, such as Lebanon, Syria and Jordan. It may be noted that if there should be a diplomatic settlement between Israel and these countries then Haifa and Ashdod would be well-placed to compete with Beirut and other Levantine ports for trade from Europe to Amman, Baghdad and even to Gulf cities like Kuwait and Bahrain. Currently, however, no such competitive test exists.

Matters are quite different in Singapore, which is subject to competition from a variety of nearby ports. It is well-known as one of the world's most efficient ports, despite its container operations being conducted on a very congested and awkward site. In recent years, however, it has been gradually withdrawing from comprehensive operations by leasing-out berths to private sector firms. Generally, these have proved successful and the practice has been extended. Even if this were not so it may be noted that the Port of Singapore Authority is closely integrated into the robust political attitudes of that Republic in a way which might not suit the somewhat different political atmosphere of Australia.

Were such a strategy to be adopted, however, it is clear that the States would have to revise their ports' statutes so as to provide the extensive new powers that would be needed. Appointments would be needed, at the most senior levels, of people with practical experience of managing large-scale service industries. Since there would be only one employer at each port then the opportunity might be taken to renegotiate the terms of employment. The Federal Government might assist in developing ideas on productivity and other efficiency indicators, port pricing, traffic forecasting and investment appraisal which would then be available to the States.

With a few exceptions, however, such a strategy would eliminate competition between ports in the same States, leaving only inter-state competition which, in Australian circumstances, is likely to be weak. It is not clear that this would lead to the efficient control of costs or of productivity; though most port authorities would be able to produce financial surpluses at any specified levels.

The 'competitive' strategy

This strategy is distinguished from the others by representing a deliberate attempt to reproduce competitive conditions in circumstances where, without such intervention, they no longer exist save in an attenuated form. Far from being a 'hands off' approach, it does so through increasing the elasticity of demand for as many port services as possible. That is to say, it induces conditions in which any rise in the charges levied by a port operator, or any reduction in the quality of the services he provides, is likely to be associated with a significant reduction in his volume of business. It does not, therefore, involve increasing the amount of port services directly provided by port authorities: but it does involve using their power in a new and carefully-considered way.

It was argued at several points earlier in this Paper that a series of technological improvements in port operations, besides greatly reducing the costs of cargo-handling and of ships' time in port, has provided such economies of scale that there is room for very few competitors in most ports, and often for only one or two - who may be in the same ownership, as is currently the case at Fremantle. Competition, which may previously have been relied on to ensure efficiency, is thus lessened and possibly absent. This statement, however, refers to the number of actual competitors at any one time: not to the number of potential competitors, nor to those who might provide similar port services in succession to one another.

The relevance of potential competition has long been recognised in economics but its practical significance has been enhanced in recent years by the development of contestability theory (Baumol, et al, 1982). Whilst this has been employed in the discussion of shipping conferences (Zerby 1983, Zerby and Conlon 1983, Davies 1984 and 1985, and Pearson 1987) its significance for port policies does not seem to have attracted much attention.

Essentially, the theory of contestability suggests that the effectiveness of competition varies with the relative positions of potential entrants to an industry and those already engaged in it. It thus contrasts with earlier theories which emphasised the numbers of actual competitors or barriers to entry. A market is said to be contestable if everyone can use the same technologies to produce what consumers will regard as similar products (so brand-name advertising may still be important). Further, it is argued that barriers to exit may be more important than barriers to entry; for capital is easily available to overcome such traditional difficulties as economies of scale and the real difficulty for an entrepreneur may be that, if the capital equipment is technically specific and immobile (like a railway track), he cannot take it with him if he decides to withdraw. It is then said to be 'sunk'.

If, however, the industry involves capital equipment which is mobile, or convertible to more than one use, then even unsuccessful entrants' capital will be recouped rather than lost. The market is said to be more contestable because more people will be willing to enter it. In the logical extreme of perfectly contestable markets, entries and exits will be costless, governed purely by the varying prospects of profits and will take place very quickly, often in the expectation that they will be temporary. This is known as 'hit and run' competition. Thus, even the possibility of a well-established firm responding to new competition by pricing below marginal costs would not deter an entrant, since he could always leave and this could be done, in such a market, without loss.

It has been argued by Davies and Zerby that, whilst perfect contestability (like perfect competition) is no more than a useful theory, the basic idea is highly relevant to present-day liner shipping. In particular, they argue that the inherent mobility of ships, coupled with the general absence of route specificity (especially noticeable with container ships) provides a general reason for the limitation of profits in liner conferences, despite agreements to avoid competition on freight rates, market shares or anything else. It is, they aver, the ever-present possibility of attracting outside competition that prevents conference members from having either high

profits or high costs. Pearson (1987) has argued that this is so only with open conferences and even then only to a limited extent. That particular argument will probably continue for some time but it need not concern us here, since our interest is in ports. It has been introduced in order to provide an example from a maritime field, in which (for Australia) many of the firms happen to be related to one another.

At first sight the theory may seem quite irrelevant, for it seems obvious that port facilities generally involve sunk costs, being both specific in their uses and fixed in their location. Certainly this is true of container terminals, grain elevators and coal loaders: but it is not true of tugs, nor of mobile equipment like fork-lifts and straddle-carriers; while even container gantries and transtainers are moved (by sea) from port to port with a minimum of dismantling. Indeed, there is a significant secondhand market for them.

The question likely to be asked by a practical businessman, however, is not whether the physical components of the capital can be moved, costlessly or at all, but whether his business can. He will not, of course, expect it to be moved without cost: but it is reasonable for him to consider the probabilities of his losing his capital, if it is in a 'sunk' form and he has to move on. Given the existing practices in Australian ports (very long leases issued largely to self-selecting firms, and with the option of renewal) it is clear that contestability is low.

It would, however, be possible to organise things differently. Following a substantial period of rapid change in cargo-handling technology it now seems that the design of most modern port facilities is fairly well-established, at least as far as the infrastructure is concerned. It would thus be possible for a port authority to organise the design, finance and construction of, say, container terminals (using consultants and construction firms from the private sector as at present) and then to lease them out to businesses on competitive bases but for much shorter periods than at present - say five to ten years. The businesses would, as now, provide their own mobile equipment and there would be room for flexibility on large or fixed items like container gantries and buildings. (It is currently quite common for container cranes to be owned by the port authorities.) All the economies of scale would still exist and, while these would still rule out simultaneous competition from more than a very few, there would still be serial competition. As Davies (1985) says:

Whereas the presence of sunk costs is seen to be the biggest impediment to exit and therefore to entry, the presence of re-usable, saleable, moveable or rentable capital serves to facilitate exit and (thus) to promote new entry competition.

In other words, the market would be opened to the entry of new firms, whether they could command large capital resources or not.

The competitive bidding for leases, which is discussed in further detail below, would ensure, first, that the opportunities for providing port services went to the most efficient operators and, second, that all concerned were encouraged to maintain and improve their efficiency in the knowledge that, otherwise, they would stand a very good chance of losing the business within the foreseeable future.

Such measures are likely to have direct effects upon the managers concerned since, while their employers might lose only a proportion of their total business, they might lose their jobs: or, conversely, be rewarded for having demonstrated their superior efficiency in the clearest possible way. Given that no firm is likely to make bids unless they offer the prospect of satisfactory profits, the best way for such managers to improve the efficiency of the operations for which they are responsible is through improving the productivity of their works, their equipment or both. If it is accepted that there is a significant difference between enjoying such improvements and really needing them then it is likely that there would be a wide range of improvements, for example, in the training of port workers, the maintenance of mechanical equipment and in industrial relations, (possibly in emphasising firm-by-firm arrangements rather than industry-wide negotiations). It may be suggested that this would employ those who know most about the job in providing exactly what is needed in Australian ports.

Given that the existing arrangements are well-established, however, the question arises of how the transition to such a system would be managed. It might, of course, be done gradually, either on a port by port basis or terminal by terminal. The decentralised system of port administration in Australia is well suited for the former, though the first step, like any innovation, would require some determination. A terminal by terminal approach within any given port might present greater difficulties, though much might depend on which of the two bidding systems, discussed below, was adopted.

However, once a State government, or a port authority, had determined upon the new course, the question would arise of how to deal with the existing leases. Essentially, this involves a conflict between the sanctity of contracts and the sovereignty of governments. This conflict can be resolved providing that existing lessees are compensated for losing their current and future profits. Existing profit levels, as certified by auditors in published accounts, would be a good starting place; they might be extrapolated to the ends of the leases and then discounted to a present value. This is likely to be better, and certainly more relevant, than attempting to compensate for loss of invested capital, since some of this would probably have been successful and some less so; and it is very doubtful whether there could be any objective guide between the two. There would also be problems over depreciation and allowances for wear and tear. To compensate for the loss of both profits and capital would, of course, be double-counting.

An interesting example of a port securing bids for port facilities comes from Hong Kong and concerns the construction of their original container terminals. Following decisions by the appropriate government bodies in Hong Kong (primarily the Marine Department, which covers most port matters) on the best location and design for the terminals, tenders were invited for their construction and subsequent operation. (The chosen site was, at the time, a vacant mud-flat with limited access. Successful tenderers were required to obtain their rock fill from nearby hill-tops and to leave these levelled and suitable for buildings.)

Since it could be assumed that the successful bidder would recoup the costs of his investment from his subsequent operations, the bids took the form of annual rental

payments to the Government of Hong Kong, which thus converted what might otherwise have been expenditure into public revenue and at rates which the operators were willing to pay. The highest bids were accepted and all problems of traffic forecasting, investment appraisal, risk assessment and finance were thus removed from the public to the private sector. Of course, if a successful bidder had over estimated his ability to pay he would go out of business. In fact, one did do so and was replaced by a consortium of local firms without any significant disruption to trade.

This example raises the important topic of the economic rents of seaport sites, and to whom they should accrue. The economic rent of a site is, of course, the most that an occupier would be willing to pay for its use, given free competition (including his freedom to move elsewhere). It differs from contractual rent (and from the work of professional valuers) in excluding any element of reward for capital that may have been invested, in reclamation, draining, levelling or building and so on. It is often argued that it is desirable for economic rent to be paid, since it encourages occupiers to move to wherever their operations are most economic; this may, of course, include opening up, or retiring from, marginal sites (that is those which, in any given circumstances, cannot earn any economic rent). Considering the immense value of many seaport sites (which, in Australia must reflect the limited opportunities for substitution between them) it is surprising that there is little or no literature on the subject; but the concept is useful nevertheless.

If the precedent of Hong Kong were to be followed then bids would be invited from potential operators of the various existing port facilities. Given sufficient publicity these should include at least some new firms, though it is possible that some encouragement may be needed. This could not make any port authority's finances worse, since it is not possible that any existing tenant is paying more than the economic rent for his terminal now. Some few port authorities might find their finances much the same; but there is a strong probability that many would find themselves with very much larger revenues. Despite this, it cannot be argued that the tenants' costs would rise, since economic rent is not a cost but a surplus.

It is interesting to enquire where the economic rents for Australian seaport sites go now. Obviously, wherever economic rents are equivalent to contractual ones the answer is that they go to the port authorities. But as there is no bidding system, and port authorities generally try to keep rents down, it is more likely that they accrue in the first instance largely to the existing port tenants or lessees. Part of this will appear through the lack of rigorous rent reviews (though these take place in some ports), but most of it through the absence of bidding.

Thus, the large profits discovered (after making suitable adjustments to the accounts) by the Prices Justification Tribunal in 1977 may be regarded as representing elements of economic rent. This may not always have been the case in earlier years, when larger numbers of firms competed for the available business: but, as was argued earlier, the economies of scale inherent in modern cargo-handling make this an untenable situation today.

There is, moreover, a strong probability that these rents have been acquired by more than the lessees themselves. In the first place, there is no reason to suppose that the businesses providing other port services, where entry is equally difficult, have been left out. Secondly, there is every reason to suppose that much of these economic rents have been acquired by labour in the forms of higher wages, a multitude of special compensation provisions and, as claimed by many other than the trade unions involved, low productivity coupled with a marked tendency for expensive industrial disputes.

It may be noted that this argument provides a general explanation for the numerous criticisms of the level of efficiency in Australian ports and which has hitherto been lacking. Thus, it is argued that, even when there is more than one operator, price leadership is common and pressure to raise efficiency levels is correspondingly weak, whether the difficulties appear as rising factor prices (like wage rates) or in any other way. Thus, businesses may add to their charges cost increases they have not yet incurred because they can; workers 'spell off' or 'carry' the less productive members of their group because they can; and management acts accordingly in performing its task of trying to reconcile the demands of the shareholders, the employees and the customers.

As noted previously, one result of port authorities acquiring economic rents for themselves would be that some of them would have very large cash flows. There is the danger that, the distinction between a surplus (like economic rent) and a cost being more familiar to economists than to voters, there might be difficulties in presenting such a policy (of the port authority attempting to acquire the economic rent for the site) to the public, and especially if it were to be opposed by the business interests concerned. There is also the danger that the port authorities might become 'gold-plated' organisations, with unnecessarily expensive head offices and officials who awarded themselves unnecessarily high salaries, took expensive jaunts abroad or wasted money in other ways. It is true that, in the early days of such a policy, much of the inflow could be devoted to retiring debt or to making investments: but both are essentially short term expedients and it is questionable whether either serves any useful purpose. In the long term the problem would remain.

Against this it could be argued that State treasuries and auditors exist to stop this sort of thing; and even that here is a new source of public revenue. There is also a precedent in the arrangements (under a Federal Act of 1985) for the allocation of licences for offshore drilling. However, whilst the increased revenues would necessarily appear as contractual rents, and the surplus as economic rents, it would be extremely difficult to distinguish between them in ways which were capable of efficient administration. Hong Kong is not necessarily a good example on this point, since it has no statutory port authority, the rents go straight to the Consolidated Fund and the Marine Department maintains only the cash accounts usual to a government body.

A final argument against this approach is that, frequently, a port (or a specific port facility) is only one link in a long chain of transport facilities between origin and destination. For reasons already mentioned there is inevitably a limited amount of

competition within and between Australian ports. It follows that the rigorous adoption of this approach might secure for the port authority the economic rents of other parts of the transport system; and possibly even the producers' surplus too. And since good harbour sites cannot be found everywhere, there may be no marginal site to which the potential operator can go.

There is, however, a second approach to competitive bidding which has none of these disadvantages; though it has difficulties of its own. This is so far removed from bidding for the highest rents that it may be best to call it 'tendering'.

This approach also seeks to reproduce competitive circumstances through making the market more contestable: but it does so through seeking to secure the best terms and conditions for the port users (the importers and exporters) instead of the highest rent. Thus, tenders would be invited with a view to ensuring, first, that opportunities for providing port services went to the most efficient operators as identified through their willingness to set the lowest scale of charges and, secondly, that all concerned were encouraged to become more efficient in the knowledge that, otherwise, they may lose the business when the time comes for renewal of their lease. Again, therefore, it is essential that the leases be fairly short, probably of the order of five to ten years.

Thus, while the port authority would specify the rent it needed (according to its own costs and financial ground rules) the lease, or operating franchise, would go to the firm which tendered, in the simplest case, the lowest charge per box, per tonne of coal or whatever, according to the nature of the port facility in question. In practice, of course, it would be necessary to specify scales of charges, and probably some indicators of service quality like speed of cargo-handling. Given the length of time for which competition has been limited it might be thought important that the structures of charges should not be specified too closely in the public invitation to tender. This might state that innovation would be welcomed. For example, if the specification provided that the charges for handling 20 foot and 40 foot containers should be in some such ratio as 1:2 then bids which showed them as equal or in any other ratio might be duly considered. The charges specified in the tender might well be regarded as maxima, since it is not clear why anyone should object to reductions. It is, however, unlikely that there would be substantial reductions, since the franchise would presumably have been secured on the basis of the lowest charges consistent with a satisfactory level of profit. The tender would also have to provide a formula for increasing the charges following cost increases experienced by operators, which are outside their control.

It is, therefore, clear that the consideration of such tenders is much more complex than that of selecting the highest rent offered. It will involve elements of judgement, for example when one tender is best in one respect and another is best in some different matter. Trade-offs will need to be considered and to reflect the preferences, if possible, of port users (primarily the importers and exporters) rather than of the tenants.

It may be thought that all this would impose an intolerable burden on the port authorities who would have to consider the tenders. But assistance may be obtained by consulting the wishes of port users through the use of systematic surveys and other market research techniques. Assistance may also be obtained by considering what has been done in other fields, some of which appear to be more difficult.

One of these is the allocation of franchises to operate television stations, as undertaken, for example, by the Independent Broadcasting Authority (IBA) in Britain. Since the IBA is statutorily bound to provide programmes that will 'educate, entertain and inform' it is obvious that much subjective judgement is involved. In this sense the work of the IBA is much more difficult than that envisaged here for a port authority, the vast majority of whose judgements will be based on objective factors. The work of the IBA is described in further detail in Appendix I.

Whilst such an approach could be applied to arrangements for the franchising, or short-term leasing, of most port facilities, including the large fixed cargo-handling terminals which provide much of the potential for efficiency, the inherent mobility of tugs may make them particularly appropriate. The vast majority of ship-handling tugs are quite capable of sailing between Australian ports. They differ mainly in their power, and thus in the sizes of ships for which they are appropriate; though, of course, it is always possible to use more tugs of lower power than fewer ones of higher power. Thus, it would be quite possible for a port authority to licence one tug operator, selecting from amongst the available candidates the one which tendered the lowest scale of charges. (If the port authority did not have sufficient powers to do this then its statutes could always be amended.)

This example does, however, provide a good example of another problem: the extent to which existing firms limit competition by carrying on operations at a number of Australian ports. For tugs this may be explored by using the normal indicator for industrial structure: the concentration ratio. This is the proportion of the industry, as indicated by some such convenient measure as capacity, output or employment, controlled by a specified number of the largest firms. The data and calculations below were provided by the former Federal Department of Transport.

In order to exclude a multitude of barge-towing and miscellaneous tugs a shiphandling tug was defined as one of 1250 brake horsepower (bhp) or more. (Bhp was the appropriate measure because all of them were diesel-powered.) On this basis 109 shiphandling tugs were identified in Australia, together with their owners. Direct ownership lies with quite a large number of firms, most of which are merely subsidiaries of a smaller number of large ones. These also have jointly-owned (50-50) firms.

The result of this was that the Adelaide Steamship, Howard Smith and Brambles groups together control some 70 per cent of the shiphandling tugs and 74 per cent of the horsepower. Moreover, the existence of several jointly-owned companies suggests that, in general, these three do not compete with one another very much. Indeed, it has been established (BTE 1986, Chapter 5) that in many Australian ports

there is, effectively, only one operator of ship-handling tugs; and, nationwide, a three-firm concentration ratio of between 70 and 75 per cent must be regarded as very high.

In these circumstances the general expectation must be of rather high charges, probably due rather more to high costs than to high profits, accompanied by a variety of devices aimed at restricting opportunities for reducing the volume of demand for tug services and a corresponding level of dissatisfaction amongst the customers. It is interesting that all these seem to appear in this context, for there are complaints of high cost, of excessive tug use being promoted (apparently by pilots, agents and port authorities) and of a failure to adapt tug numbers to the increasingly widespread availability of transverse thrusters in ships (which are fitted to improve ship manoeuvrability and thus reduce the need for tugs). A consultant's report to the Australian Chamber of Shipping (1984) provides much evidence that, in Australian ports, ships are frequently served by significantly more tugs than their masters thought necessary; and that this was particularly so when the masters were sufficiently familiar with the ports in question to have been exempt from the need to take pilots.

Other, and more significant, examples of high industry concentration ratios may be found in the cargo handling field. Conaust, a stevedoring, agency and container handling firm owned, like Seatainers, by P & O offer their services at no less than 42 Australian ports, covering all States and all major ports. Patricks (also related to the Howard Smith group) have a similarly widespread pattern of operations. The question of whether there are economies of scale and scope in having such a remarkable spread is a matter worthy of some research; for it is certain that such economies are not as obvious as those within a given terminal. It is also worth considering whether such economies, if they exist, outweigh the disadvantages of reduced competition.

Whatever the answer, whether in tug ownership, cargo-handling or other service provision, in the present context it is obviously important that there should be a sufficient number of competitors, whether they are to bid for the highest rents or to tender for the lowest scale of charges; and that they actually compete instead of forming cartels. It is possible that competition policy may need to be examined in this field, by suitable amendment to the Trade Practices Act. (To avoid distraction it may be noted that the arguments used to support shipping conferences are not relevant in this field, even though some of the participants are related to one another.)

Whilst, therefore, such measures as have been suggested here involve much greater and more purposive roles for port authorities, precedents from elsewhere suggest that even if the approach is unfamiliar in this field it can work satisfactorily even where much greater as well as many more elements of judgement are required.

INDUSTRIAL RELATIONS

It may be tempting to regard the efficiency-inducing pressures of greater market contestability as being sufficient to improve industrial relations as well. In fact, however, the institutional arrangements and attitudes are quite different. For example, the general approval given to trade union activities (which may often be criticised in detail, but rarely for their right to exist) may be contrasted with the widespread condemnation of cartels.

The older system of casual employment with a workforce shifting frequently from one employer to another had many evils: fortunately it has gone. Despite the apparent advantages (employers had a pool of labour on which they could draw at will; and any individual could go fishing after a good day), it is quite inappropriate for modern conditions. These are essentially capital-intensive and involve the skilled operation and maintenance of machines by people who must work as responsible individuals: not as gangs. There is, therefore, no point in negotiating gang sizes down to some lower level: there should be no gangs at all. It is also helpful for the individuals to be familiar with the details of their employer's equipment and practices and, most important of all, to identify with him.

This is difficult under the existing system since, although the vast majority of Australian waterside workers are said to be permanently employed by given firms, it is actually quite common for them to be 'lent' to their competitors. People are neither homogeneous nor unaware of what is going on around them. If they are lent by their nominal employer to his competitors then they will feel undervalued, have a lower opinion of the firm and very possibly of the whole business of competitive industry. In the circumstances, some scepticism may be entirely understandable and loyalty is likely to be given more to the trade union than to the employer. This is all the more likely if the union frequently attacks the employers for inefficiency, for example on safety matters, or for providing inadequate maintenance for mobile equipment. (For examples, see articles in *Maritime Worker*, Vol 71 No 2 and Vol 72 at page 7.)

It may be suggested that greater productivity and fewer disputes might follow if such arrangements were modified, for example by the complete abolition of all 'lending' arrangements.³ Thus, 'permanent employment' would mean staying with one employer, just as it does in most other industries; and since this would mean his paying wages permanently, he would be anxious to provide permanent work.

Since short-term fluctuations will continue workers will thus need to be trained in a variety of skills, including plant and equipment maintenance and cleaning. Preventive maintenance work may be planned flexibly when there are no cargoes to be handled, and a degree of over-manning accepted because, given the value of ships' time, any breakdown will need to be put right fast. A start has been made

3. Long-term transfers are another matter and might be facilitated by an ordinary market mechanism rather than by any special arrangements.

in this approach in some Australian bulk handling ports. If and when all the maintenance has been done and there is still no cargo to handle, then additional training courses may be provided. Given adequate preparation, a room and some straightforward equipment there is no reason why training courses should not be provided at very short notice. The Port of Singapore Authority has demonstrated how this may be done (Goss 1979, Volume 2, page 281). Such courses would be all the more convenient and effective if they were provided by the employer on his own premises rather than by any central school or organisation.

Given the variability of waterside work and the desirability of people being trained in a multiplicity of skills it may well be best if people were paid for the skills they possessed rather than for the task they were performing at any given time. Thus, a standard minimum rate for a waterside worker might be agreed, but with additions for recognised skills and qualifications. These might have to be re-validated from time to time by means of refresher courses.

A closer relationship between employer and worker might then open the way for reconsidering some of the costs involved, for example in the numerous arrangements for compensation, over and above the wage rate. The individual costs of these are often moderate, but they accumulate. In 1977 the Prices Justification Tribunal found that, in total, they might amount to 116 per cent of the standard wage rate. If the worker then experiences an average income tax deduction of 29 per cent then he actually receives, as take-home pay, less than one third of what he costs his employer. In these circumstances there is room for very large differences in the perceptions of what waterside workers cost. It is possible to envisage discussions which might lead to a reduction in this remarkable disparity, for example by coupling a reduction in the cost of employing waterside workers to a corresponding rise in take-home pay. These discussions might be assisted by a survey of employees' wishes on the subject and it might even be an advantage for such a survey to be carried out by a firm accustomed to conducting opinion surveys and financed jointly by the port authorities, the employers and the unions concerned. If carefully designed, this might reveal preferences more thoroughly than straightforward votes on resolutions, besides including those who might wish to avoid union meetings.

As mentioned earlier, one of the functions of management is to reconcile the differing wants of the shareholders, the workers and the customers; if only because any one of these three can close the firm and put the manager out of a job. To do this successfully he has to manage the resources that he actually has and not those he might want. Thus, if some terminal managers are former ships' officers and experienced pre-sea training of a quasi-military nature then it is not only useless but also counter-productive to transfer the hierarchical attitudes appropriate to such a setting to the dockside in Australia. In the one, an order is obeyed and very possibly at the run: in the other it must be consistent with some fairly complex industrial agreements, or contracts; and the order might be given so as to imply an appropriate degree of equality between the parties to those contracts. If it is not, then the function of reconciling the needs of the three parties involved may be frustrated, either immediately and completely (as with a stoppage) or more generally

and continuously, as by the insistence on maintaining restrictive working practices. Both may be regarded as a form of workers' control.

A positive contribution to this may be the formation of joint (management-worker) productivity committees, on a terminal or company basis, at which more efficient methods of working may be discussed. It may be noted, however, that this is unlikely to work effectively unless, first, management react positively instead of negatively and, second, associated modifications can be made to working practices, including those written in industrial agreements. Hence, it is likely to be important that trade union representatives are present. At the level of the individual, this might be extended into the practice (which originated in Japan) of instituting 'quality circles', in which very small numbers of individuals gather to discuss how job-related difficulties might be more effectively overcome. Obviously, goodwill from management at all levels would be vital ingredients. It might also be helpful if middle and junior management received training in the interpretation of industrial agreements equivalent to those of their opposite numbers in the trade unions, for whom special courses are organised. The courses might even be held jointly.

Improvements in productivity are desirable in themselves; but their full effects cannot possibly be passed on to importers and exporters unless there is a significant fall in the numbers employed. The Waterside Workers' Federation (WWF) currently refuses to consider this. To some extent this reflects their having been given insufficient credit for the remarkable reductions they have already accepted: from some 26000 in 1969 to 5600 in early 1987. Given that cargo throughput has risen by some 50 per cent, this is equivalent to a sustained labour productivity increase of over 11 per cent per year compound. The reputation of Australian port workers needs to be modified to reflect this great achievement. To some extent the WWF reluctance also reflects the difficulties of operating a smaller trade union.

This last can be modified by union mergers. Such mergers, aimed at extending the modification of the union structure from a craft to an industrial basis are already under discussion. The employers would welcome this and, given the opportunity for public gains, the Federal Government might find it possible to encourage and hasten the process.

It is often thought that the desirable reduction in numbers will be taken care of by the current age structure, which is heavily weighted towards the older men. I am indebted to the Association of Employers of Waterside Labour (AEWL) for showing me their statistics on the age-distribution of Australian waterside workers. This shows that, in February 1987, the mean age was 48.8 years and those aged 50 to 64 inclusive constituted nearly 52 per cent of the total. (This is not a contradiction because the distribution is skewed; the mean and the median are therefore different.) The five largest ports of Adelaide, Brisbane, Fremantle, Melbourne and Sydney had some 73 per cent of the total and the lowest mean age within that group of ports was 47.5 at Brisbane. Looking more widely, only Port Giles and Walcott showed mean ages below 40 and those two ports had a total of only 15 men.

However, compulsory retirement at 60 would have reduced the total numbers by only 5.9 per cent, with no more than about 5 per cent a year going thereafter. Thus, if a 50 per cent reduction were taken as a target of about the right order of magnitude then it is clear that it would take about nine years, plus negotiating time, to achieve. It may be thought that, given the advantages for the rest of the population, this would be a good deal too long.

Experience with voluntary redundancy schemes in Britain, by which substantial capital sums have been offered to those relinquishing their rights to work in the port industry, suggest that these attract mainly the younger workers, whose skills are flexible, or transferable and who have, therefore, a good chance of getting jobs elsewhere. The older ones stay, worsening average productivity levels.

This is, therefore, a matter of considerable delicacy in which, because of the benefits likely to accrue to Australia as a whole, there is a good case for the Federal Government and port authorities becoming involved, whether this is initially welcome to the employers and the trade unions or not. Some financial assistance might well be provided (as in many other countries) and might possibly be conditional upon a number of other measures being adopted within the ports industry. These might, for example, include the development and publication of appropriate productivity indicators or other measures of open reporting. It might be instructive to compare the costs to the taxpayers with those of waiting 10 years.

PORT CHARGING PRINCIPLES AND PRACTICE

It is, of course, implicit in many of the possibilities discussed above that the port authorities would be willing and competent at the larger and more powerful roles envisaged for them. They might need to hire new skills, and especially for those traditionally-minded bodies whose expertise was concentrated upon civil or mechanical engineering. Fortunately, Australia has no shortage of the business-minded; and much of the work could be done by consultants provided they had a sound understanding of Australia.

A change from the existing system of port charges to one based upon accepting the highest rentals bid would, of course, stabilise the financial position of port authorities, besides making many of them richer. This is because their costs would remain fixed, as now, and their revenues would cease to be dependent upon the flows of shipping and of cargo. It would then be possible to abolish the existing dues on ships and cargo; and, of course, the costs of collecting them.

Much the same could be achieved with the second, or tendering, system if the rents required were raised sufficiently. Since the port authority's costs would be slightly reduced (by the collection costs) the aggregate revenues it needed would be slightly less, and no one should object; unless, of course, they wished the port authority to share some of their business risks. It is for consideration whether this should be encouraged. It was pointed out earlier that existing port charges are largely of the form of tolls or taxes, unrelated to marginal social costs and correspondingly open to a number of obvious objections. Were such charges to

be retained, however, then attention might still be given to simplifying them and in two different ways.

First, the current system of levying dues both upon the ship and upon the cargo presupposes that there is some logical basis for dividing the port's costs in this way. It is arguable that there is not. In order to work cargo to or from a quay it is necessary that there be some vertical surface against which the ship may be secured and a horizontal one upon which the cargo may rest. The two facilities are thus in joint demand. Moreover, as it is very likely that either would fall down if the other were taken away, they may also be regarded as being in joint supply. To distinguish between the two is therefore absurd. That it is unnecessary to have both is confirmed by the practice in the port of Antwerp, which charges only dues on ships and is widely considered to be one of the most efficient general cargo ports in the world.

This may be confirmed in a different way by enquiring who pays these separate charges. If we consider a bulk carrier operating under a time charter then the dues levied on the ship's tonnage must be paid by the charterer because he ordered the ship to visit that port; but, because he chartered the ship in order to carry his own cargo, he will also pay the wharfage dues levied on that. Similarly, any calculation of the cost of through transport will necessarily contain both, regardless of the terms on which sea transport is provided. It may be noted, in this context, that calculations of the cost of a ship calling at a port are not generally useful substitutes for calculating the total through transport cost, since they exclude the dues on the cargo, besides several other items. They may, however, be used to persuade port authorities to shift the burden, proposed price increases for example, from the ship to the cargo, on the grounds that the former enter into liner freight rates which have to be negotiated with the Australian Shippers Council, whilst the latter do not. At best the discussions are spurious and divert attention from more important matters. It is difficult to maintain that this serves any useful purpose, at least as far as Australia is concerned.

Second, the opportunity might be taken to remove the elements of discrimination which currently exist, between inward and outward cargoes, at most Australian ports. For general cargo containers the ratio of inward to outward wharfage rates varies from 1.00 at Brisbane through 1.97 at certain Tasmanian ports to 2.52 at Fremantle. For general cargo having no specific rate it is again 1.00 at Brisbane and 1.97 in at least some Tasmanian ports.

These ratios cannot be related to cost differences, partly because it costs more, not less, to load a ship than to unload it. The effects of such differences are to provide modest degrees of assistance to local exporters and of protection to local industry, whilst raising prices to local consumers. Whether either is a good idea must be for local decision, though it may be doubted whether the port authority is the appropriate vehicle for them, since its expertise does not generally lie in the application of protection theory. In practice, such effects are likely to result from local producers being better organised than consumers; they are thus an example of 'regulatory capture' discussed in Chapter 2. Given the intentions of the Australian

Constitution that member States should not discriminate against each other, even more serious doubts may be raised, and especially since the port authorities levying these charges are controlled by the State governments.

OTHER PORT AUTHORITY FUNCTIONS

Whilst port congestion was once common, with lines of ships filling berths and numerous riverside berths or finger piers busy along the waterfront of many cities, the development of new and much more productive terminals has often produced the opposite problem: that of long-term surpluses of obsolete poor facilities. This is often a severe problem in Australian port cities, as it is around the world. Frequently, they decay into eyesores; wooden structures may become dangerous. There are financial problems to the port authorities and town planning problems to the cities.

To a limited extent, marine uses may be found for them, as maritime museums and marinas. If the revenues are not great, neither are the expenses; and a distinct and valuable contribution may be made to the life of the city. Thus, for example, the revival of Fisherman's Wharf in San Francisco is a world-famous tourist attraction. Contrasts in the success achieved may be observed between Australian ports, since such activities, like those suggested elsewhere in this Paper may require skills not often called for by the traditional activities of port authorities. Fremantle sets a good example, by allowing public access to most of its quays, with neither theft nor casualties resulting. Melbourne sets a good example by encouraging visits from schools, ports being excellent teachers of geography.

An entirely different approach, however, is to capitalise (perhaps literally) on the high income-elasticity of demand for homes overlooking water; and especially if associated with moorings and easy access to a business or entertainment district. There are ports where, with sensitive and skilled development, disused docks and quays may be put to such good effect that they become fashionable places to live. The success of the Docklands development in London may be seen from the remarkable rise in property values there. Again, to spot and take advantage of opportunities for this may require skills and attitudes not commonly found in traditional port authorities: but consultants may be used, or joint ventures formed with property developers.

It may, however, be doubted whether, in the long run, such activities ought to remain within the control of the port. In the short run managerial efforts will be diverted: in the long run there is the insidious danger of cross-subsidisation, resulting in maintaining for too long activities that ought to be stopped, or in financing investments that ought never to have been started. One answer, therefore, is for such new developments to be 'hived off' to a new body; at the very least there should be the closest co-operation with town planners. The current re development of Darling Harbour, at Sydney, is an example.

The Association of Australian Port and Marine Authorities (AAPMA), which is currently developing a more positive role, may well be able to do useful work on the

theory and practice of a variety of efficiency indicators. If these are to be capable of cross-sectional analysis (that is to provide comparisons between ports for any given period) as well as longitudinal analysis for any one port (and, of course, it has been implicit in much of this paper that they should do both) then they will have to be based on standard forms of port statistics, covering inputs like labour and crane/hours, and financial statistics showing the levels of cost, value added and revenue for each major activity as well as the usual income and expenditure accounts and balance sheets. It should hardly need to be added that replacement cost depreciation should become standard practice as long as there is any significant rate of inflation. The Inter-State Commission may well have a useful role in much of this.

Such improvements might go far to modify the remarkable situation in New South Wales and in South Australia, where the existence of a State-wide body responsible for ports and other maritime matters has facilitated the absence of even the simplest financial reporting on a port by port basis. It is surely remarkable that the interested citizen of, say, Sydney has no way of discovering whether the port which is such an important part of his city's life makes a profit or a loss; or whether it is cross-subsidising other ports in the same State such as Newcastle and Port Kembla; or being cross-subsidised by them. The same situation exists in South Australia, where the Department of Marine and Harbours produces accounts on a cash basis covering the whole of the State.

That the same bodies have quite other functions (registration and inspection of power yachts, navigational aids, ship surveys and so on) covered within the same financial accounts, confuses the matter still further. The existence of published accounts for other ports (Brisbane, Fremantle and Melbourne are examples; there are many in other countries) may seem to argue that there are no commercial disadvantages in this practice; and, anyway, accounts should reveal what goes on, not conceal it. Fortunately, the recent division of the Maritime Services Board of New South Wales into 'business units' would facilitate such a reform. (The head office, or central administration, of such a body represents, of course, an activity to be identified as such: not an overhead to be allocated by any, inevitably arbitrary, process to the others, greatly though this may add to the difficulties of controlling the cost of the central administration, which tends to initiate such allocating processes.)

Although it is strictly outside the scope of this Paper, the existence of non-port responsibilities has been mentioned and it may be thought that they, too, might be separately identified for financial reporting as for other purposes. It may even be possible to examine whether they could be hived-off or delegated. For example, the inspection of gliders in Britain is almost entirely delegated by the Civil Aviation Authority to the British Gliding Association and by them to individual clubs. These are then so jealous of this privilege that the work is done thoroughly as well as cheaply and without any body of public servants. The inspection and licensing of power craft might, similarly, be delegated to approved yacht clubs. A deliberate search for other, non-central, activities might turn up several similar opportunities.

CHAPTER 5 CONCLUDING REMARKS

This Paper has argued that there are considerable opportunities for improving Australian seaports and that, because trade would increase, the overall economic advantages of doing so are likely far to exceed the immediate cost-savings within the ports themselves. Whilst there are some arguments for considering whether Australian ports should be placed under some kind of centralised control, at least for planning purposes, a considerable act of faith in the abilities of planners would be needed before both the cost of the change and the disadvantages were outweighed. There is, however, a great deal of difference between the adoption of centralised planning and of a conscious strategy.

The main body of the Paper, contained in Chapter 4, describes four possible strategies for Australian seaports. These are termed, after their central features, the 'minimalist', the 'pragmatic', the 'public service' and the 'competitive' strategies. The last is distinguished from the first by its containing a deliberate attempt to reproduce freely competitive, or at least contestable, market conditions in circumstances where the economies of scale inherent in modern port technology render it quite uneconomic to have more than a very few competitors operating simultaneously in any given port; where competition between ports is limited by the great distances between them; and where potential, as well as actual, competition is currently limited by several important providers of port services operating at many of them.

The markets for the various port services may be made more contestable by ensuring that the basic equipment of port infrastructure (possibly more, depending on the circumstances) is provided by the port authorities on a rental basis, and with opportunities for occupiers to be changed at a much greater frequency than at present. The changeover should not be difficult, since most of the port infrastructure needed already exists (some of it in abundance) and it merely remains to negotiate some suitable compensation for the present occupiers losing their prospective profits.

The terminals which this infrastructure represents would be offered by the port authority upon either of two bases. The first involves allocating them to firms who bid the highest annual rents. If this made some port authorities too rich then it is at least conceivable that they might pass the excess on to the State treasuries, who might use it to reduce the general level of taxation or, if they preferred, to increase services to the public. Thus (assuming the difficulties in doing this could be overcome) the benefits would be widely diffused.

The second involves allocating the terminals to firms who propose to charge the lowest (maximum) rates to the port's customers for loading and unloading ships, or for whatever service they propose to provide. The benefits of having the most efficient operators would again be diffused, but this time through the lower charges to port users. Both of these approaches would involve leases, or franchises, being offered for much shorter periods of time than at present (five to ten years instead of twenty-five), so as to provide serial competition where simultaneous competition is rendered impossible by the economies of scale. The same principles may be followed with other port services, much as in the supply of tugs.

The second, or 'tendering' approach is obviously more complex than the first and would require the port authorities to exercise considerably more authority than at present. They would also need to exercise rather different skills and a large measure of business judgement. This, however, would be almost completely objective and it can be demonstrated that official bodies exist which regularly and successfully exercise more judgement and on less objective bases. Appendix I describes an example of this in some detail.

The theories behind this are those of economic rent and market contestability. The first, in conjunction with what has gone before, suggests that it would be better if economic rent went either to the port authorities (as under the first system) or was widely distributed amongst the ultimate consumers of port services (the importers and exporters of the goods which pass through them) rather than remaining within the ports as at present (being largely distributed amongst those, including the workers, who currently provide port services).

The second theory indicates the desirability of increasing the number of potential competitors, by ensuring that they will require very little capital of their own, and also for decreasing the interval between their opportunities to bid. Under either of these approaches there should be a continuous pressure towards increasing productivity and, indeed, efficiency in every sense. There is no reason to suppose that efficient port operators will be unable to make reasonable profits. Indeed, there is every reason to believe that super-efficient port operators will be able to win all the bids and, subsequently, to make very good profits. Thus, under either of the proposed systems, the continuous success of any one operator need not be a cause for concern, unless corruption is suspected.

With the great care which industrial relations always require (and deserve) it should be possible for significant improvements to be made, both through increasing the opportunities for workers to identify with the progress and success of their employers and through reducing the total numbers employed. The first might be achieved by making the term 'permanent employment' into 'permanent work', so that each man stays with the same employer instead of being lent to his competitors. The second may well involve considering financial assistance from the Federal Government.

If it were accepted that the primary responsibility for planning and developing ports should remain with the individual States, then it would be possible for the Federal

Government to assist this by encouraging the provision of standardised, comparable statistics and reports. It might also provide statistics itself, for example by carrying out a survey of the inland origins and destinations of various commodities. Usually, these are difficult and expensive; much care and expertise would still be required, but many problems would be eased in Australian conditions by the limited number of primary commodities involved and by the existence of national bodies covering some of them (grain and wool are examples). For general cargo, the tracking of containers (over the limited period of the survey) should prove much easier than following individual consignments, which would have been necessary before containers were so widely adopted.

None of these strategies involve any large-scale capital expenditures, for Australia already has ample, probably even excessive, numbers of container terminals and bulk-cargo handling facilities. They are generally modern and of good design. What is needed is that they should be efficiently operated and that the benefits of this should be widely diffused. Achieving this will require economic sense, political dexterity and a deep knowledge of what ideas will work in the context of Australia. From the many conversations I have had whilst visiting the country I am convinced that there is no shortage of these.

These four strategies each have their own advantages and disadvantages, all of which have been described to the best of my ability. Because only Australians can understand their own country in sufficient depth, it must be for Australians, not some temporary visitor, to take the appropriate decisions, to adopt or re-design one of these four, to combine them or even to devise something completely different.

It might possibly be suggested, however, that if the 'public service' option does not appeal, then the remaining three could be considered as offering a logical series; and that, following the significant work done so far, by the Webber Committee, the various studies of the Bureau of Transport Economics and the further deliberations being undertaken under the Federal Government's Waterfront Strategy, Australia is already half-way through it. The various initiatives, forums and centres of discussion already developed in Australia should provide good opportunities for extending this. It is even possible that some of these ideas will be of interest and use in other countries.

APPENDIX I OPERATIONS OF THE INDEPENDENT BROADCASTING AUTHORITY (UK)

The Independent Broadcasting Authority (IBA) performs its function by conducting surveys of what people think of its programmes and what they like to see, by public meetings and by consultation with representative bodies. Individual viewers' letters are also welcomed. A specification is then issued and applications are sought from potential programme contractors, who will be required to provide and equip their own studios - indeed, to do everything except operate the transmitters, which is the only service actually performed by the IBA. Occasionally there is only one applicant for a franchise: there may be six or seven.

Having received the applications (about a year in advance of the service starting) the IBA then examines each for financial stability, technical competence, ownership (which must not be foreign, nor in the hands of people with criminal records), programme plans and achievements, quality of industrial relations and training, equal opportunities proposals and so on. Since each contractor covers a particular region, the IBA likes to see a wide spread of shareholdings, preferably with at least some within the region concerned. There is no objection to innovations in such matters and the IBA once came very close to awarding a contract to what was, in effect, a workers' co-operative. Very detailed financial projections are made by the IBA's finance department. All this, of course, is aimed at deciding whether the bidder is responsible, honest and competent - bearing in mind that much technical knowledge can be hired, by the applicants and by the IBA. The real problem lies in deciding how good the bidder will be, since his aim is to continue to make profits and that of the IBA is to maximise programme quality.

The IBA publishes a summary of applications, seeking to ensure that it is widely available. Often, these are commented upon in the press and there is thus a second chance to seek public views. Some preliminary sifting having been done, supplementary questions are put to the bidders, to probe remaining points of doubt. The replies are used to produce briefs for the members of the IBA to interview the applicants. The process differs from that being discussed here, since there is no bidding - except in terms of claims for forthcoming programme qualities. It is in that way that the whole process is more subjective, and thus more difficult, than that which would be appropriate for a port authority and those advising it. (A number of parallels may, however, already have become obvious.)

There is also continuous monitoring of all programmes broadcast and such faults as a lack of editorial control, political bias or distasteful scenes or language will lead to warnings. If these are ignored or the faults repeated then there will be a formal letter notifying the contractor that he may lose the right to broadcast (and with a clear implication that he would be most unlikely to get it back, for any region, at any future time). The IBA also has the ultimate power to 'pull the plug', that is to decline to transmit programmes. This has never been done but it has been explicitly threatened.

Despite the use of industry-specific equipment like TV studios and cameras ('sunk costs'), the markets remain highly contestable. Buildings and equipment may be leased and there are predictable opportunities for resale if a contractor fails to secure renewal. The difficulties, which may be imagined, of a forced sale to a single buyer do not actually appear, partly because it is possible to hedge by letting another applicant have an option to buy, partly because the contracts are of sufficient length for much of the equipment to be nearing the end of its economic life (it has a fairly high rate of obsolescence) and partly because the market is in fact wider than the incoming and outgoing contractors. There are, for example, considerable export opportunities to countries with compatible technical standards; and exploring these is a normal part of a contractor's business whenever he considers re-equipment.

Whilst the powers of the IBA within the duration of a contract are undoubtedly useful in maintaining standards above some minimally satisfactory level, it seems likely that the force which tends to raise them is the certainty of competition for its renewal. This will be strengthened by the knowledge that the IBA can, and has, refused to renew the contract of an incumbent who has not been notably bad in favour of a newcomer who promised innovation. The efficiency of the IBA in administering all this is enhanced by the significant volume of public discussion of the subject, including informed press comment.

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