Contestability and the Australian Liner Trades

Occasional Paper

This study analyses the efficiency of the Australian liner shipping industry by using the recently developed theory of contestable markets. Its importance is reflected in the fact that over half of Australia's ocean borne trade is carried by the liner sector. Its topicality flows from both the global issues of legislative initiatives, increased political interference, technological and organisational changes and overtonnaging and from the singularly Australian concerns of service dependability, shore-based costs, trade union influence, the attitudes of shippers and the role of the ANL.

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Contestability and the Australian Liner Trades

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FOREWORD

This is the second Occasional Paper produced for the Bureau of Transport Economics under its current Research Fellowship Scheme. The Fellowships are offered to qualified and experienced people in the public or private sector or in academic institutions who are interested in undertaking a period of research on a specific issue or issues falling within the Bureau's general charter.

Dr J. E. Davies, Department of Economics, Acadia University, Nova Scotia undertook the study presented in this Paper during 1985.

The analysis undertaken in the study and the conclusions drawn are entirely the views of the author and do not necessarily reflect the position or views of the Federal Bureau of Transport Economics.

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None of the above, however, are in the slightest way responsible for any errors of fact or interpretation; these are solely mine. Given that this study was researched and written over the three month-period from May to July 1985, it must be appreciated that the scope for such errors may be large indeed.

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SUMMARY

This study analyses the efficiency of the Australian liner shipping industry by using the recently developed theory of contestable markets. The selection of problem area was motivated by the importance and topicality of the subject. Its importance is reflected in the fact that over half of Australia's ocean borne trade is carried by the liner sector. Its topicality flows from both the global issues of legislative initiatives, increased political interference, technological and organisational changes and overtonnaging and from the singularly Australian concerns of service dependability, shore-based costs, trade union influence, the attitudes of shippers and the role of the ANL.

The choice of analytic technique was based on the relative novelty and promise shown by contestable market theory and by the controversial and unconvincing results achieved by more traditional methods. In this respect, the reasons why the industry is so seemingly difficult to analyse and is therefore conducive to controversy were identified in order to isolate those areas of concern where the new theory should be able to make a contribution. These reasons included:

- the difficulty of supply management relative to manufacturing because of an inability to utilise inventories;
- a lack of an explicit market for assured access to liner services;
- the commonality of service costs;
- the influence of exogenous conditions on sustainable load factors and therefore efficiency;
- the difficulty of establishing necessary and sufficient conditions for workable competition; and
- the wide variety of different pressure groups with a legitimate interest in liner shipping.

An outline of the theory revealed that it is explicitly constructed to analyse the strength of competition and economic efficiency in the

presence of multi-product outputs, economies of scale and capital intensive methods of production. It thus appears ideally suited to application to liner shipping. The theory has recently attracted considerable criticism, although analysis of such criticism indicated that it served more to circumscribe the manner in which it may legitimately be employed than to undermine its logical integrity.

The theory shows that competitive discipline will be strong and markets will perform efficiently when three conditions are fulfilled, namely when all firms are similarly placed with respect to access to technology and customers and in terms of the regulations under which they operate, when sunk, non-recoverable costs are minimal and when new firms can ensure for themselves a temporary period of stable profitability by being able to negotiate contracts with shippers. These conditions were observed to be present in most Australian liner trades. At the same time, however, certain situations were identified which may potentially detract from this. These situations included:

- the ownership by conference lines of terminal facilities;
- the necessity of specialised vessels on some trades;
- trade union favouritism; and
- political interference.

These impediments to efficient performance, however, were shown to be either localised in extent or else to be currently of minimal practical consequence because of overtonnaging in the industry.

Contestable market analysis was also used to analyse the pricing policies which conferences traditionally have practised. It was shown that although the revealed structure of most Australian liner trades was not monopolistic, the common cost problem imposed pricing constraints similar to that of natural monopoly and has resulted in the adoption of a value of service rate structure that is economically efficient.

In consequence of the favourable pricing and competitive performance suggested by the theory's application, no active regulation of the industry or of conferences was implied. Instead it was suggested that policy be structured about the principle of subjecting conferences to maximal regulation by the market.

Market regulation, the theory suggests, will be greatest and most beneficial when the pool of potential entrants is large and when the three conditions required for efficiency are in place. As Australia

has no control over the former - this being determined primarily by the global forces of supply and demand - the key task of policy is to enhance the degree to which the other conditions can be realised. In this respect the aforementioned impediments may be minimised by:

- ensuring non-discriminatory access to terminal facilities;
- encouraging shipper and consumer groups to actively prosecute their particular trading interests; and
- employing diplomatic means to address political impediments issuing from the policies of both foreign governments and domestic trade unions.

Additionally it may be prudent to monitor conferences' agreements and behaviour since under conditions of chronic shortages of shipping capacity they would be strategically placed to command considerable market power. As such shortages do not seem likely in the foreseeable future, stronger measures such as are embodied in the 1984 US Shipping Act appear neither necessary nor desirable.

CHAPTER 1 INTRODUCTION

Looking back on the first half of the 1980s decade, it is evident that the pattern of innovation, change and uncertainty that characterised liner shipping in the 1970's has been perpetuated and even accentuated. On the technical side, the prior development of containerisation has spawned further innovation in the establishment of combined, multimodal and round the world services. In terms of political developments, more than a decade of effort have seen the enactment of both the UNCTAD Code of Conduct for Liner Conferences and the 1984 US Shipping Act. Additionally the long talked of clarification of the standing of liner conferences vis a vis the EEC's Competition Rules has been absorbed into a more general pursuit of a 'Common Shipping Policy' while various sovereign states, including Australia and Canada have begun independently to re-examine the legal position of shipping conferences in respect of the application of their domestic restrictive practices legislation. Furthermore, the earlier developments of the expansion of national lines amongst developing countries and the maritime aggrandisement ambitions of others have showed little sign of slackening. And to add to the confusion, the operating milieu of the industry has become increasingly constrained by the global problems of overtonnaging and recession.[1]

In the specific context of the Australian trades, the above problems have been especially pronounced. More particularly, non-conference shipping, stimulated no doubt by global overtonnaging, has expanded to a degree unprecedented in recent Australian history. This, in turn, has put pressure on the extension of pan-Australian freight rates and on the financial viability of the ANL and certain other long established conference carriers. These developments, coupled with defensive responses involving trade union influence, have led shippers to question the validity of traditional shipping arrangements, the adequacy of government policy and the role of the national line and wharfside unions.

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1. For an analysis of these issues see OECD (1982, 1983 and 1984).

Given this combination of particular national problems and international developments, it came as no surprise when in September 1984 the Hon Mr Peter Morris, the federal Minister for Transport, announced the instigation of a wide ranging review of Australia's overseas shipping arrangements focusing particularly on the effectiveness of Australia's regulation of the industry in facilitating efficient commercial services (Minister for Transport 1984a). To this end, a Task Force comprising representatives from shippers, the shipping industry, the trade union movement and academia was expressly commissioned to examine the industry and submit recommendations to the Minister (Minister for Transport 1984b). To assist in the process, the Federal Bureau of Transport Economics was charged with undertaking a complementary study aimed at gathering factual information which would facilitate an economic evaluation of structure, conduct and performance in the industry by the Task Force.

Against a background of such exhaustive scrutiny, it may appear that the scope of an additional, separate study of the industry would be somewhat limited. It is hoped, however, that the analysis presented in this document will neither be irrelevant nor duplicative of existing efforts. In an attempt to secure this end, the present study will focus largely on applying to the analysis of the industry a relatively new conceptual model - the theory of contestable markets - which promises to be very useful in isolating structural and behavioural conditions appropriate for efficient performance in the industry, and in obverse though methodologically like manner, also those conditions which may be positively detrimental to economic welfare. In keeping with the environmental flux of the subject industry, this theory is appropriately novel and also highly contentious and therefore it is hoped that its treatment here will serve to complement any explicit applications or allusions to its relevance in the studies of the Task Force or the submissions tendered to it.

THE SCOPE OF THE STUDY

In terms of structure, the study is divided into seven chapters. Chapter 2 will address the institutional setting by establishing an Australian perspective on the liner shipping industry. More specifically, the shipping implications of Australia's trading patterns and relationships will be outlined together with the organisation and development of the industry and the evolution of governmental policy applied thereto.

The object of Chapter 3 will be to try and explain why the industry is seemingly so difficult to analyse and why its investigation has traditionally produced such diverse and often contradictory conclusions especially in terms of its economic performance. To this end, the differences between shipping and typical manufacturing industry will be outlined and also the particular analytical difficulties posed by the industry's multi-product nature and consequential complex cost interrelationship. Additionally, the problem of isolating necessary and sufficient conditions for effective or workable competition in the industry will be addressed as will the contentious issue of identifying the nature of the public interest in liner shipping and the implications this has for normative analysis.

Chapter 4 of the study seeks to survey and summarise the theory of contestable markets. Attention will focus primarily on the key issue of the theory's treatment of the nature and strength of competition in modern industry through the valuable insights it affords into multi-product cost interrelationship and the stability of pricing equilibria will also be analysed.

In Chapter 5, the theory will directly be applied to the Australian liner shipping industry. The extent to which the conditions required for contestability are in practice satisfied will be assessed as will the nature and consequence of any actual or potential impediments thereto. The theory will also be used to investigate the pricing policies adopted by liner conferences and also the economic rationale of such organisations.

Chapter 6 will address the theory's policy implications, especially in terms of the effects on shippers of the identified degree of market contestability and the appropriate response to this of government. Additionally, the compatability of these policy implications with traditional Australian practice and with the provisions of the USA's 1984 Shipping Act will be investigated.

By way of conclusion, Chapter 7 will briefly summarise the study and focus attention on the principal conclusions reached especially in relation to the adequacy of existing Australian legislation and policy in securing an efficient liner industry in the light of the insights provided by the new theory.

CHAPTER 2 AN AUSTRALIAN PERSPECTIVE ON THE LINER SHIPPING INDUSTRY

INTRODUCTION

The desired goal of any application of economic theory to real world issues is an improved understanding of the relevant economic processes, constraints and opportunities, an understanding that may in turn form the basis of policies to maintain or improve economic performance. A necessary prerequisite for the attainment of such an end is a proper appreciation of the physical and institutional conditions that constrain and mould economic behaviour. To this end, the present chapter seeks to outline the principal conditions that shape the role of liner shipping in Australia. More specifically, the relationship between shipping and trade and the organisation of the Australian liner shipping industry will be summarised in order to establish a foundation for the study's subsequent structure - conduct - performance based analysis and to also highlight any perceived areas of concern or inefficiency that necessarily will be a part of such analysis. Firstly, however, it will be instructive very briefly to summarise generally the nature of international shipping and in particular the liner sector.

OCEAN SHIPPING AND THE LINER SECTOR

It is customary to classify the ocean shipping industry, on the basis of mode or operation, into two components - the liner and the non-liner sector. The latter consists primarily of tankers, dry bulk carriers and specialist product carriers, a division based on functional specialisation. In each case the common ancestor is the general purpose tramp, a vessel which by now has virtually disappeared from modern commerce. But like the old tramp, the modern non-liner operator serves exclusively or almost exclusively the transport needs of a single larger shipper, namely the vessel owner in the case of industrial carriers moving their own produce (such as BHP on the coastal trades or the multi-national oil companies on international routes) or more commonly, the vessel charters. Invariably the cargoes of such shippers are voluminous and of relatively low unit value. No fixed schedules are adhered to as the vessel's itinerary is simply a

function of the particular trading needs of the party currently chartering it. Generally in the non-liner sector, buyers and sellers are numerous and market intelligence is very high with transactions being effected by specialist brokers within formal market places such as the Baltic Exchange. Freight rates are determined by the immediate interplay of supply and demand and the market approaches closely to the requirements of perfect competition.

In the liner sector both mode of operation and market structure are singularly different. Concerning the former, scheduled, common-carrier type services are supplied on fixed geographical trades, the target market being not a single shipper but the relatively high valued cargoes of the often many hundreds of small shippers trading over the route in question. There has admittedly been some recent erosion of the operational distinction between the two sectors with some traditional liner cargoes now moving in sufficient volume to appeal to the charter market and, from the opposite end, some specialist bulk operators having begun to combine their operations with scheduled liner services. In large measure, however, the two markets are still separate requiring very different levels of service and vessel types.

With respect to market structure, sellers in the liner sector are generally few in number and rather than compete independently many choose to limit their competition through forming conferences. A conference is essentially a selling cartel structured about an agreement that limits the mutual competition of member lines, primarily by fixing common freight rates. It also may call for the rationalisation of sailing schedules and ports of call and sometimes for the pooling of cargo and revenue (Marx 1953). Currently there are some 350 conferences operating worldwide - which means that most of the world's deep sea trades are covered by them - and some have been in continuous or near continuous operation for over a century, ranking them, thereby, amongst the oldest and longest surviving of all cartels.

The nature and scope of disclosed conference agreements vary greatly in response to different trading, competitive and, above all, political conditions. Indeed, in consequence of the latter it is customary to distinguish two principal types of conferences, namely open conferences which operate in and out of the United States (US) and whose agreements are circumscribed by that country's domestic legislation and regulatory policy, and closed conferences, operating elsewhere, whose agreements are relatively unconstrained by legislative processes. The former represent the weakest type of

conference agreement as US policy dictates that entry to the cartel cannot be restricted to qualified applicant lines. Pooling and rationalisation are also not allowed. Agreements, are thereby confined essentially to the fixing of a common freight tariff (Zerby 1984).

The closed conference, in contrast, is able to limit membership, rationalise sailings and pool revenue and/or cargo subject to the agreement of its membership. It is thus potentially and normally in practice a much tighter form of agreement and where pooling is used it has been described as the most anti-competitive form of cartel agreement possible (Bennathan & Walters 1969b). Australian conferences, other than those operating to or from the US, are closed and some have used pooling in the past and on occasion still do (Deakin & Seward 1972, 68; Stubbs 1983, 35).

It is important to note that even though a conference may be closed, the trade on which it operates may nevertheless still be open to entry. Indeed, on many of the world's trades closed conferences have to coexist and compete with non-conference or independent operators. The extent, then, to which a *trade* is open to new entry is a function not simply of the existence of conferences and any first mover advantages they may enjoy but also of the presence of firstly, any barriers to entry intrinsic to the business and secondly, and of much greater importance, the presence of any governmental entry restrictions such as cargo reservation.

If domestic, on-shore businesses attempted to negotiate conference type agreements they would, in virtually all western countries, automatically fall foul of national competition laws. Such laws, however, have not normally been applied to the liner shipping industry for three reasons. First, the industry is international and therefore the enforcement of national legislation would inevitably lead to conflicts of jurisdiction and problems of international comity, as has been the case in the US (Maechling 1977). Second, governments have consistently judged conferences useful for promoting the health of both international trade and national merchant marines (Marx 1953, Committee of Inquiry into Shipping 1970). In particular conferences have been seen to have a role in maintaining stable, high quality transport services thereby providing ensured access to world markets for the country's exporters and importers. Additionally, conferences have been perceived to foster the development of a healthy, modern merchant fleet, an attribute often regarded as vital to a country's wider national interests through, for example, its ability to provide logistical support to the armed forces. Such was the case recently in

the Falklands' War. Third, it is not clear amongst economists whether the conference system is necessarily detrimental to economic welfare. Some argue that it has substantial positive merit in the service quality and rationalisation of supply it potentially allows (Department of Transport 1978, Committee of Inquiry into Shipping 1970). It is also claimed that the alternative - open competition - is unworkable and destructive (Agman 1976). Some economists have argued that the industry is essentially competitive (Gardner 1975) while others argue the opposite, that conferences are an unnecessary and economically inefficient restraint on trade (Bennathan & Walters 1972, Cassidy 1981a).

The proximate purpose of this study is to cast some new light on this last issue.

AUSTRALIAN TRADE AND ITS SHIPPING REQUIREMENTS

The function of merchant shipping is, of course, to service the overseas trading requirements of the nation. In this respect, the volume of Australia's total trade in current dollar terms is shown in Table 2.1 and as can be seen the combined value of imports and exports exceeds $A47 billion. Perhaps more indicative than an absolute measure of the significance of trade to the Australian economy is to compare the value of its exports to its Gross Domestic Product (GDP) in order to get a measure of the country's trade dependence. As is also shown in the table, nearly 13 per cent of the country's GDP is attributable to its exports activities. Most of these exports, moreover, consist of the primary products with which the country is so well endowed and this in turn has allowed the importation of the diversity of manufactures that has contributed to making the Australian standard of living amongst the highest in the world.

In the servicing of this relatively very high volume of trade, sea

TABLE 2.1 AUSTRALIA'S TOTAL OVERSEAS TRADE AND ITS RELATIONSHIP TO GROSS DOMESTIC PRODUCT, 1983-84

	Value ($m)			*Total as per*
	Air	*Sea*	*Total*	*cent of GDP*
Imports	4 171	19 369	23 540	12.56
Exports	2 073	22 018	24 091	12.85

Source Australian Bureau of Statistics (1985).

transport plays by far the dominant role , accounting for some 91.4 per cent of the value of exports and 82.3 per cent of the value of of imports moved in the 1983-84 year as is evident from Table 2.1. The composition of ocean borne trade by shipping sector is shown in Table 2.2. As can be seen the liner sector is comparatively tiny in terms of the tonnage of cargo lifted, amounting to just 5.16 per cent of the total, a consequence primarily of the country's massive bulk exports. However, in terms of value, liner cargoes amounted to no less than 52.2 per cent of total exports and imports. This disproportionate financial significance stems from the much higher unit values of the goods shipped: whereas the average value of a tonne of liner cargo in 1983-84 was $1 805, that for bulk cargo was just $178.

Concentrating now solely on the liner sector, it is evident that the inbound and outbound trades are substantially imbalanced in terms of value. This primarily is a reflection of the commodity composition of the two flows, the outward trades consisting substantially of relatively low valued primary products, in particular meat and wool, while the inward trades comprise largely high valued manufactures. Thus the average 1983-84 value of a tonne of exports, from Table 2.2, was $1 335 while that of imported liner cargo was $2 326. What the table does not show, however, is that the inbound and outbound trades are also substantially imbalanced in terms of cargo volume. Thus although the tonnage of exports exceeds that of imports, capacity on the inward trades has traditionally been much more strained than on the outward. This is because of the light, voluminous nature of many of the imported goods and the need on some trades for using some capacity to reposition empty reefer boxes, these not always being suitable for holding manufactures. Together these factors have resulted in some inward trades 'bulking out' whereas under the much rarer circumstances when capacity constraints have been felt on outward trades, the problem typically has been one of 'weighting out' as a result of the relatively dense nature of the principal meat and wool exports.

Concerning the principal sources and destinations of imports and exports respectively, some six geographic areas dominate as revealed in Table 2.3. These regions collectively account for 92 per cent of all Australia's imports and 82 per cent of its exports. With the exception of South East Asia all these markets are located at a considerable geographic distance from Australia's main ports, particularly so the dominant markets of Europe, Japan and North America. With respect to the relative significance of Australian trade to these dominant markets it is noteworthy that although the country is one of the world's largest exporters by volume - a

TABLE 2.2 AUSTRALIA'S OCEAN-BORNE TRADE BY LINER AND NON-LINER TYPES, 1983-84

	Liner		*Non-liner*		*Total*	
	Weight (tonnes)	*Value ($'000)*	*Weight (tonnes)*	*Value ($'000)*	*Weight (tonnes)*	*Value ($'000)*
Imports	5 682 541	13 219 747	16 885 438	6 149 115	22 567 978	19 368 861
Exports	6 316 530	8 429 552	203 519 240	13 588 032	209 835 769	22 017 585
Total	11 999 071	21 649 299	220 404 678	19 737 147	232 403 747	41 386 446

Source ABS (1985).

consequence of its massive outward bulk trade - by value Australian goods are nevertheless proportionately an insignificant part of the total imports of its principal trading partners. Thus, as shown in Table 2.4, the total value of exports, including liner and bulk cargo - from Australia and New Zealand combined - constitute a tiny fraction of the total imports of these countries and of course if one were able to separate out Australian liner cargo, the proportion would be lower still, especially for Japan.

TABLE 2.3 LINER CARGO MOVEMENTS WITH AUSTRALIA'S PRINCIPAL TRADING PARTNERS 1983-84

	Imports		*Exports*	
Trade area	*Value ($m)*	*Per cent of total*	*Value ($m)*	*Per cent of total*
Europe	3 862	29.2	2 144	25.4
East Asia	1 513	11.4	726	8.6
Japan	3 109	23.5	1 784	21.1
North America East Coast	1 695	12.8	927	11.0
North America West Coast	1 390	10.5	495	5.9
South East Asia	667	5.0	869	10.3
Total		92.4		82.4

Source ABS (1985, 43-44).

TABLE 2.4 THE SIGNIFICANCE OF AUSTRALIAN AND NEW ZEALAND TRADE TO THE EEC, US AND JAPAN, 1980

Country	*Per cent of imports by value originating in Australia and New Zealand*
EEC	0.53
USA	1.1
Japan	4.3

Source United Nations (1981).

To conclude this section, it is important to note that international trade is clearly very important to the health of the Australian economy, accounting for some 12.85 per cent of its GDP. And of the country's total ocean borne trade, liner cargoes figure prominently comprising more than 52 per cent by value. Dependable, efficient and low cost liner services would thus seem an obvious prerequisite for the maintenance of this situation. However, it should be realised that from a global perspective the Australian liner trades could be categorised as isolated and thin and therefore their appeal to the commercial shipowner, relative to other trades, may be somewhat limited. Perhaps indicative of this is the fact that none of the round-the-world services currently in operation call directly to Australia (OECD 1984, 21).

AN OVERVIEW OF THE AUSTRALIAN LINER SHIPPING INDUSTRY

As noted previously, liner services to and from Australia are principally provided under the auspices of the closed conference system. The first such Australian conference was established on the inward UK route in 1884 though an agreement on the outward trade was not fixed until 1909, a consequence of the substantial tramp competition attracted by the country's primary product exports. From the onset government attitudes vacillated considerably over the desirability of the system. Thus the 1906 Industries Preservation Act, drawing strongly on the model of the US Sherman Act, was to outlaw deferred rebates, at least in the outward trades, a provision subsequently reversed by an amendment in 1930. This last move was part of a government-sponsored attempt at trade rationalisation on the Australia/UK and Europe trade, a measure effected through the formation of the Australian Overseas Transport Association (AOTA). This body was essentially a forum within which the conferences could negotiate with a shipper body (the then Export Overseas Transport Committee) over such matters as freight rates and conditions of service. The establishment of AOTA was in many ways a landmark as it saw the official sanctioning of the closed conference system - this being judged the appropriate vehicle for rationalisation - and secondly, it committed against the strengthened conferences the countervailing power of a shippers' association.

Since that time the dominant policy position of successive governments has been predicated upon this 'conference-enfranchising bilateral monopoly solution' - to use Cassidy's much quoted description (Cassidy 1981a) - despite the modernisation of legislation. In respect of legislative developments, the passage of the Trade Practices Act in 1965 served to replace the old Industries Preservation Act although it

embraced a similar philosophy in seeking to preserve competition in Australian trade and commerce to the extent required by the public interest. Many conference agreements, of course, would normally have questionable legal standing in this respect and therefore perceiving liner shipping to be a special case, the government in 1966 explicitly exempted outward cargo conference agreements from the Act and thus, in effect, the earlier AOTA provisions were extended from the UK-Europe trade to cover all outward trades.

More specifically, the exemptions provided to outward conferences under the controversial Part X of the Trade Practices Act, as currently amended, allow them to engage in the fixing or regulation of freight rates; giving to a withholding from shippers special rates, privileges or advantages; the pooling of earnings, losses or traffic; the allocation of ports or restriction or other regulation of the number and character of sailings between ports; and the restriction or other regulation of the volume or character of goods to be carried. Such legislative blessing served to confirm the earlier government view that closed conferences are in the public interest.

It should be emphasised, however, that Part X did not confer complete licence on conferences. In return for the general sanctioning of their customary practices, they were required to file all agreements with the Clerk of Shipping Agreements - an office established by the Act. The Govenor General may subsequently disapprove them if there was not due regard to the need for services to be efficient, economical and adequate. Additionally the Act required an undertaking of shipowners to negotiate with a designated shipper body, which, since 1972, has been the Australian Shippers Council.

A particular public interest was not explicitly identified in Part X. However, implicitly it is clearly the country's trading interests which are seen to be served by rationalised, efficient and economical shipping services, the agent for whose provision is viewed as the closed conference modulated by formal, united shipper consultation.

The above legislative provisions and philosophy have remained intact to the present though an attempt was made in 1977 to slightly amend the Act in the light of both technological and organisation changes wrought by the container revolution and legislative and policy changes abroad. The Grigor Report which advocated such changes, was not however acted upon.

With respect to containerisation, its adoption in Australia, as in trades elsewhere, was marked by considerable structural change. In

particular the capital requirements of the new technology and the greater economies of scale its operation allowed precipitated a rationalisation and concentration of industrial structure. This was reflected in the formation of consortia such as Overseas Containers Ltd (OCL) - comprising P&O, Ocean Steamship Co Ltd, Furness Withy and Commonwealth Shipping Co Ltd - and Associated Container Transport Ltd (ACT(A)/ANL) consisting of Blue Star, Ben Line, Ellermans Lines, T&J Harrison and Port Lines and the Australian National Line - consortia which on most Australian trades came to command a dominant market position. This is illustrated in Table 2.5 which shows the capacity of the operators serving on the Europe-Australasia trade. As can be seen, the two principal consortia of OCL and ACT(A) collectively accounted for some 62.7 per cent of the capacity on the route.

In addition to stimulating corporate concentration, the new technology also demanded a restructuring of service itineraries as the reduced number of larger container vessels could not economically call at as many ports as the fleets of smaller vessels they replaced. The solution adopted was to centralise container movements in three principal ports - Sydney, Melbourne, Fremantle (and to a lesser extent Brisbane) and develop feeder services to these centres from the catchment areas of ports no longer having direct service. Additionally, so as not to penalise shippers in the outport areas, the cost of feeder movements to the central points was to be met by the

TABLE 2.5 CAPACITY SHARES OF THE OPERATORS SERVING ON THE EUROPE-AUSTRALASIA FULLY CELLULAR MARKET

Shipping line	*Share of total capacity*	*Cumulative percentage*
OCL	36.4	36.4
ACT(A)	26.3	62.7
Nedlloyd Lines	9.2	71.8
Hapag Lloyd	8.5	80.3
Lloyd Treistino	5.9	86.2
Shipping Corp of New Zealand	5.7	91.9
Compagnie Generale Maritime	4.7	96.6
Others	3.4	100.0

Note Australia and New Zealand are served jointly by the conference in the inward trades but separately on the outward trade.

Source Fossey, J. and Pearson, R. (1983, 5).

conferences. This latter development further served to maintain and consolidate the conferences' policy of charging 'pan-Australia' freight rates - a traditional practice pressured on the conferences by shipper interests and State governments under which, in the interest of regional equity, all shippers, irrespective of geographic location, are charged the same rate on shipments to any common destination.

So far discussion has omitted any consideration of the significance of non-conference shipping in Australian trade. While the market position of conferences is clearly dominant on virtually all trades, non-conference shipping is nevertheless present on most and its impact has undoubtedly been increasing of late primarily in consequence of global overtonnaging. The relative position of conference versus non-conference shipping on Australia's principal trades is shown in Table 2.6 and Table 2.7. As can be seen, on the major trades specified the conferences' market share is more than 80 per cent on both inbound and outbound trades. Interestingly the conferences' share on those trades is consistently higher by value than by volume. This indicates that non-conference lines, far from 'creaming' the high valued trade - a sin of which they are perennially accused - in point of fact are carrying relatively more low paying cargo than are the conferences. Indeed, whereas the average value of a tonne of conference cargo on the inbound and outbound trades was $2 605 and $1 479 respectively in the 1983-84 year the corresponding figures for non-conference cargo were $1 647 and $928.[1]

The situation on the minor trades, however, is somewhat different, at least on the outward trades, as here the non-conference share by value is higher than by weight and at 45 per cent, it is relatively high indeed. It thus appears that non-conference shipping makes its presence felt by a combination of market-niching in the outward minor trades and elsewhere through the more general pursuit of lower rated cargo. Possible explanations for this latter strategy may be that either it may be perceived likely to induce less of a competitive response from the conferences than would pursuit of the high rated cargo, or else much of high rated cargo, for example meat, may not be available for immediate competition being locked up in to contractual arrangements with conference carriers.

The general nature of the non-conference lines serving Australia are very diverse in terms of both size and ownership. Large, commercially

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1. Figures computed from ABS (1985).

TABLE 2.6 CONFERENCE, NON-CONFERENCE AND AUSTRALIAN FLAG SHARES OF AUSTRALIA'S OUTWARD LINER TRADES BY VALUE AND TONNAGE, 1983-84

(per cent)

	By value			*By tonnage*		
Trade area	*Conference*	*Non-conference*	*Australian flag share of total*	*Conference*	*Non-conference*	*Australian flag share of total*
Europe and North Mediterranean	78	22	4	81	19	3
Philippines, Hong Kong and Taiwan	77	23	20	69	31	17
Japan	94	6	13	81	19	8
South Korea	84	16	31	80	20	28
West Coast of North America	87	13	11	84	16	11
East Coast of North America	86	14	9	53	47[a]	6
Middle East Gulf	96	4	0	97	3	0
South East Asia	82	18	15	74	26	14
New Zealand	36	64	27	34	66	26
Papua New Guinea and Solomons	77	23	0	67	33	0
Minor trades	55	45	3	60	40	3
Major trades total	81	19	12	75	25	10

a. This figure is high because of shipments of high-density mineral sands in con-bulk ships.

Sources BTE (1986). BTE estimates.

TABLE 2.7 CONFERENCE, NON-CONFERENCE AND AUSTRALIAN FLAG SHARES OF AUSTRALIA'S INWARD LINER TRADES BY VALUE AND TONNAGE, 1983-84

(per cent)

	By value			*By tonnage*		
Trade area	*Conference*	*Non-conference*	*Australian flag share of total*	*Conference*	*Non-conference*	*Australian flag share of total*
Europe and North Mediterranean	77	23	7	77	23	5
Philippines, Hong Kong and Taiwan	71	29	21	74	26	17
Japan	93	7	16	88	12	15
South Korea	79	21	34	83	17	31
West Coast of North America	79	21	7	70	30	9
East Coast of North America	85	15	5	85	15	5
Middle East Gulf	100	0	0	100	0	0
South East Asia	82	18	18	83	17	19
New Zealand	41	59	31	23	77	20
Papua New Guinea and Solomons	74	26	1	69	31	2
Minor trades	42	58	2	23	77	1
Major trades total	80	20	13	78	22	12

Sources BTE (1986). BTE estimates.

orientated lines with conference and/or non-conference services on routes elsewhere are present such as ABC Container Lines and Nedllovd on the East Coast of North America trade and Zim with non-conference services on no less than seven Australian trades. Eastern bloc shipping too is present in the Polish Ocean Line operating to Europe and the Red Sea and FESCO trading around the Western Pacific rim. Likewise the national lines of some developing countries such as the Shipping Corporation of India and the Algerian National Line are present on some routes. In addition, several trades contain an assortment of very small operators with service patterns and schedules seemingly calculated to avoid conflict with conference operators. The overall competitive consequence of non-conference shipping is at present a matter of considerable debate and therefore a fuller discussion will be reserved for Chapter 5.

Another matter of concern in the contemporary Australian shipping scene relates to the matter of national participation. At the moment National flag participation in overseas liner shipping is confined to ANL which is owned by the Commonwealth Government. The ANL has been in operation since 1956 when an Act of Parliament established the Australian Coastal Shipping Commission that was charged with operating a *commercial* shipping enterprise in competition with private shipowners. Trading under the business name of Australian National Line, the Commission's early operations were confined to coastal services, though in 1969 it entered the overseas liner trades on the Japan route and since then has also entered the UK-Europe, New Zealand, North America and South East Asia trades. In addition to liner and coastal trade, the current activities of the ANL include overseas bulk shipping and it is also the country's largest terminal operator. On the shipping side, its fleet, as of June 30th 1984, comprised 33 vessels of some 1 174 144 dwt, of which 10 were engaged in liner trades, 15 in bulk trades and the remainder in domestic services. Collectively its operations employed a workforce of 3657 of which 2104 were seagoing personnel, and it also generated revenues in the same year approaching $570 million (ANL 1984).

Concerning the position of the ANL relative to other liner carriers serving Australia, its physical presence is significant. As shown in Tables 2.6 and 2.7, it carried no less than 12 per cent by value and 10 per cent by volume of all outward liner cargo and 13 per cent and 12 per cent respectively for inward cargo. Perhaps more significantly, ANL is the largest single line engaged in Australian trade, lifting more by both weight and value than any other company.

Of its various activities it is those relating to the overseas liner

sector that illustrate best its apparent role.[2] The ostensible purpose of the ANL here is to assist in the development of more efficient general cargo services. While still adhering to its basic mandate of operating on a singularly commercial basis, the presence of the ANL has been perceived to contribute towards this objective through having positive effects on four different fronts. Firstly, and most importantly, it provides the Government with a lever capable of influencing conference behaviour. In all its trades it operates purposely as a conference member and as such it should be able directly to influence conference operations in support of Australian trading interests both through the deliberate pressure of negotiation or else by itself meeting special shipping needs not fully met by a conference. Secondly, it may provide the Government with a window on the conferences through affording the opportunity of a closer insight into costs and methods of operation. This, of course, should provide the intelligence required for any determination of the necessity of the direct or indirect pressure listed above or of any stronger medicine such as legislative change. Thirdly, the existence of the ANL may induce commercial shipowners to improve their services in trades where it is not present rather than risk its entry. Fourthly, and finally, the competitive pressure exerted by ANL may hopefully encourage the adoption by rival lines of innovations and modern cost saving techniques (Department of Transport 1978, Chapter 7).

Whether or not ANL is in a position successfully to fulfil these functions is a matter of debate. A particular difficulty is that it is demonstrably a high cost carrier, being obliged to hire Australian crews at high Australian manning scales, paid at relatively expensive Australian wage rates and being subject to a fiscal environment that amongst OECD countries has traditionally been by far the worst in terms of its influence on shipping profitability (Gardner, Goss and Marlow 1984, 161). In consequence of this and the political imperative of serving unprofitable routes, its financial performance has been less than impressive and as of 30 June 1984 the ANL was technically bankrupt with an accumulated loss of $129.5 million that exceeded its capital by $3.7 million. Without successive capital injections in 1983 and 1985 that totalled some $160 million it is doubtful whether it could have remained in operation (House of Representatives, Hansard 16 May 1985).

As a result of this cost background, certain political impositions in

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2. According to Trace (1981, 40), the exact role of the ANL has never been precisely defined by the Government.

terms of service patterns and a continuing commitment to operate commercially, it has been questioned whether the ANL is really in a position to substantially influence conference behaviour, particularly with regard to freight rates (Hunter 1967, Trace 1981).

Recently, however, the commercial effectiveness of the ANL has substantially improved. Following the publication of the Crawford Report in 1982, it is now allowed for tax purposes to write off new vessels over five years and with provisions for a 20 per cent depreciation allowance in the year prior to commissioning, this reduces to four years after commissioning. As such the fiscal environment in Australia is now similar to that of other OECD countries. Additionally, the ANL has recently withdrawn from several unprofitable routes such as the 'beer run' to Darwin[3] and the North American trades. In consequence, it was in 1983-84 able to show a modest operating profit of $3.3 million in and with recent capital injections serving to reduce its debt payments, it appears likely that this trend will continue. But against this it should be noted that its Australian complement have left ANL more vulnerable to labour disputes than foreign crewed lines to the extent that in 1983-84 no less than 287 ship operating days were lost to industrial action, at a cost of $7.08 million, a figure twice that of its operating profit for the year (House of Representatives, Hansard 17 May 1985, 2627).

Despite the labour issue, which is probably ANL's biggest single problem, improved financial performance in conjunction with its physical size means that ANL has a presence which the conferences cannot ignore.

To date, discussion on the Australian shipping scene in this study has focused simply on the ship-operating side. However, as is evident in the role accorded shipper consultation in official policy, especially the designation under Part X of the Trade Practices Act of the Australian Shippers' Council (ASC) as the official shippers' body, the shippers too have a major say in the determination of the conditions of service, most obviously in the outward trades. The stated objectives of the ASC are specified in its annual reports and include the over-riding concern of securing efficient, economical and adequate outward liner cargo shipping services for its members and the associated need for ensuring the maximal cooperation between shipper and producer interests in their negotiations with shipowners. The

3. On this subsidised trade 95-98 per cent of the outward cargo was beer (House of Representatives, Hansard 16 May 1985, 2618).

membership of the ASC, as of June 1984, consisted of 25 exporter bodies - principally the main producers - although in rate and service negotiations the ASC does not act on behalf of all of these unless especially instructed to do so. It is perhaps the greatest single weakness of the ASC that some of the largest producer groups, including meat, wool and metals and minerals have contracted out of its negotiations in favour of individually coming to terms with the conferences. Consequently it has been estimated that the residual cargo left for ASC representation amounts to just one-fifth of the total freight bill (Stubbs 1983, 104). Given this and some inevitable divergence of particular interest amongst those groups it does represent, the effectiveness of the ASC as a cohesive and powerful countervailing force to the conferences has recently been questioned (Cassidy 1981b). While these problems are often held to be general to shippers councils, a specific additional difficulty of the ASC has been chronic underfunding (Department of Transport 1978, 79) and with a staff complement of seven it does appear that its ability, especially in terms of legal and accounting expertise, must be somewhat limited.

So far discussion of the shippers' side has focused solely on the circumstances surrounding the outward trades, where both individual producer boards and the ASC are engaged in formal negotiations with the conferences. On the inward trades, there has been no provision for such institutionalised dialogue. This does not necessarily mean that Australian importers are relatively disadvantaged[4], as on the inward trades freight forwarders have a significant presence and frequently 'play off' against each other conference and non-conference lines.[5] On the outward trades the role of freight forwarders is generally limited given the small range of commodities exported and the dominant role the producer boards play in the determination of their conditions of shipment. An exception to this rule, however, is the outward trade to New Zealand, where diverse manufactures figure predominantly. Here the scope for freight forwarding activity is much greater and the opportunities for it have been correspondingly filled (BTE 1980, Chapter 9).

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4. Cassidy (1981b), however, contends that importers are relatively disadvantaged and that the government has consistently ignored import rates, evidently perceiving them to confer fortuitously some extra 'natural' protection on domestic import competing industry.
5. It is noteworthy that the practice of Australian importers - inherited from the colonial era - of buying substantially on f.o.b. terms means that domestic freight forwarders, rather than their overseas counterparts, are instrumental in negotiating the conditions of shipment on the inward trades.

Turning now to matters of policy and shipper perceptions of conference performance, there appears of late to have been a substantial weakening of support by the ASC for the closed conference system. Thus a 1983 study was able to conclude, 'There are some complaints (by shippers) about specific conference services..., however they do not amount to an indictment of the system as a whole and there is not widespread or strong pressure for its overthrow' (Stubbs 1983, 121). However in its 1984 annual report the ASC clearly indicates that it finds unconvincing the notion incarnate in government policy that the closed conference is the best means of maintaining shipping services and indeed included in its report is a list of no less than 16 recommendations for policy and legislative change which if implemented would substantially increase government regulation of conferences and facilitate shippers in the use of non-conference services. It is not clear, however, whether this view is representative of shippers generally, given the domination of the ASC by the principal producer bodies, especially as recent research by the BTE suggests that in the main Australian shippers judge service quality and dependability very highly and perceive that conferences are more able than independents to provide this quality particularly as it relates to frequency (BTE 1985).

The final element requiring attention in this overview of the Australian shipping scene relates to the shore-based side of container operations. In particular the cost, organisation and ownership of terminal facilities have all of late shown themselves to be contentious issues. With respect firstly to costs, it is a common presumption that shore-based costs assume progressively diminishing significance as trade length increases, since proportionately more costs would be incurred at sea, other things being equal. In the Australian context, however, other things appear not to have been equal as despite the length of the trade routes, shore-based costs constitute about one-third of the total liner shipping freight bill (ASC 1984).[6] Relatively, Australian port productivity is reported to be amongst the worst in the industrial world, with working rates for container terminals substantially below those of other developed or newly industrialised countries, and container handling charges which rank amongst the highest in the world (Stubbs 1983, 186-188).

This problem appears to have several different sources. Poor

6. For some commodities, such as wool, shore-based costs are reported to be as high as 70 per cent of the door-to-door costs, as on the Europe run (BTE 1984, 5).

management of port facilities and of the coordination of land and sea transport is undoubtedly contributory (BTE 1984, 329). The principal cause, however, has traditionally been cited as labour problems which have served to create two distinct types of difficulty. Firstly, whereas containerisation demanded of the workforce increased flexibility and the possession of a wider range of skills, demarcation lines between different unions on the waterfront have both prevented this and have further increased costs and inefficiency through precipitating work stoppages as a result of inter-union disputes. Indicative of the potential for this is the fact that no less than 15 separate unions are involved on the waterfront and indeed it has been estimated that 27 per cent of all strikes have flowed from inter-union arguments (Stubbs 1983, 199-201). Secondly, the exercise of union power by the Waterside Workers' Federation in particular, appears also to have contributed to high operational costs. In this respect, while it did admittedly oversee a two-thirds drop in membership following containerisation, it simultaneously evidently managed to appropriate for its residual membership in higher wages many of the productivity improvements afforded by the new technology. Indicative of this has been the very rapid rise in the average weekly earnings of waterside workers since containerisation; thus whereas in 1971-72 this was at the same level as the all-industries average for male employees, by 1982-83 they exceeded it by some $120 per week (BTE 1984, 323).

Contributing to the above problems have been the principal shipping lines which own the main terminals. Fearing industrial action they historically have weakly conceded to union demands, apparently being content to operate on a cost-plus basis, passing on any increased costs to the customer, rather than bargaining strongly or striving for efficiency improvements. What ultimately has allowed this is a lack of effective competition between ports, as the maritime unions have a fortuitous monopoly in handling virtually all foreign trade which has no alternative - modest air shipments aside - other than to go through union controlled ports. This is very different to the situation in Europe and North America where competition between the ports of different countries effectively prevents both local or national inefficiency and also the ability to pass on to the customer any unnecessary cost increases.

Over and above their influence in port costs, union influence is important in that they have espoused a poliy of pressuring for increased Australian flag participation in ocean shipping. A recent indication of the potential consequences of this was the ban imposed by the unions in March 1983 on non-conference lines in the East Asia and Japan/Korean trades and also on cross traders in the Australia-US

trade following ANL's laying up of the *Australian Enterprise*. This particular event led to the infamous ANSCON Accords whereby to regain union approval the non-conference lines reportedly entered into an agreement with the conference stipulating that they were to refrain from charging less than 90 per cent of the conference freight rates (Trace 1984). The idea, of course, was that as ANL is always a conference member, anything that improves the conference's performance will also simultaneously strengthen ANL's ability to operate in a commercially viable fashion.

These Accords particularly annoyed the ASC which saw in them a sweetheart relationship between the unions and the conferences that was singularly prejudicial to its interests[7], a perception which no doubt has contributed to its recent anti-conference sentiments. In the back of its mind is no doubt the possibility of the trans-Tasman trade writ large. On this trade, the maritime unions of both countries have for some time had a policy of banning foreign crews which in effect reserves the trade for Australian and New Zealand crewed vessels. In consequence, shippers are precluded from taking advantage of the considerable transit capacity available on cross trading vessels plying the Tasman as part of a longer voyage and are additionally disadvantaged by the considerable cost inefficiency experienced due to the lack of competitive checks this bilateralism imposes upon the national carriers (BTE 1980, especially Chapters 4 and 7).

As a final observation on land-side operations, it was noted above that in the main, container terminals are owned by the principal shipping lines. The potential consequences of this have of late become issues of some contention, with allegations that ownership in itself may confer an element of monopoly power and that it is conducive to dubious commercial practices such as transfer pricing and discriminatory treatment of other lines using the equipment especially on the basis of conference affiliation (BTE 1984, 34).

CONCLUDING COMMENTS

This chapter has endeavoured to summarise the Australian liner shipping industry so as to focus attention on the principal problem areas perceived to be present by actors therein. Initially it was

7. The ASC estimates the Accords cost Australian exporters $20 million in increased freight costs in the first year of their operation (ASC 1984, 27).

shown that the health of the Australian economy is very dependent on ocean borne international trade of which some 52 per cent by value is carried by liner operators. The total value of liner cargo imported and exported in 1983-84 amounted to $21 649 million a figure which is 38 times the total 1984 earning of the ANL. Evidently Australia is a shipper rather than a shipowning country. This does not, however, mean that shipowning is unimportant, for geographic isolation and the fact that its principal primary product exports face competition in the world market from many other sources, renders of crucial importance dependable and economical transportation. It must be remembered, however, that in aggregate Australia's liner cargoes constitute only a very small proportion of the international business of its principal trading partners. This, coupled with geographic isolation, raises questions as to whether the dependable economic liner services so crucial to the economic health of the country can be taken for granted. Other than the ANL and a few foreign state lines of questionable motivation, the country's liner services have in the main been provided by commercial, foreign-based companies, working together in conference cartels whose agreements have been exempted from domestic restrictive practices legislation. It is hardly surprising, then, that the users of such services have consistently expressed concern over their provision. The track record of conferences, however, shows that at least with respect to service quality their performance has been difficult to fault (Stubbs 1983, 114).

It is against this background that evaluations must be made of the doubts expressed by the ASC over the continuing need for conferences, the problems emphasised by conferences relating to destabilising non-commercial competition, the role of ANL in liner trades, the consequence of union power and the general determinants of efficiency in the industry. Traditionally economists have attempted to formalise and discipline their analyses of such issues by applying standard conceptual models suggestive of likely corporate behaviour and associated economic performance. Indeed Chapter 5 and 6 of this study seek to do just that. In the context of liner shipping, however one must be particularly careful in performing such an exercise as its technical, institutional and business characteristics are sufficiently different from typical manufacturing or service industries as to render very difficult the standard application of formal economic models. This, in turn, compounds the difficulty of effective policy formation. The reasons for this - which clearly circumscribe the precision of positive and normative industrial analysis - will form the substance of the following chapter.

CHAPTER 3 PROBLEM AREAS IN THE ECONOMIC ANALYSIS OF LINER SHIPPING

Given the importance of international trade to the Australian economy - as discussed in the previous chapter - and the significance of liner shipping in the servicing of the high valued portion of this trade, an efficient liner industry is an obvious necessity.

Evaluating the performance of the industry so as to establish current levels of efficiency is unfortunately a difficult and contentious task. At the best of times economists frequently disagree over the welfare consequences of various industrial practices - a disagreement that supports a thriving industry in anti-trust law and economics - but in few areas is the disagreement so patent, so polarised and so enduring as in the case of liner shipping. It seems that since the time of the Royal Commission of Inquiry into Shipping Rings in 1909, when the committee felt compelled to issue Majority and Minority reports, the profession has been unable to make up its mind on the basic question of the social effects of the industry's overt cartelisation. At present, then, we have groups judging conferences to be tight monopolies (Department of Justice 1977), others perceive them the hapless servants of economic forces (Gardner 1978), others, more pragmatically, see them as a potential evil that ought nevertheless to be endured in the interests of service and political imperatives (Marx 1953), while others, seemingly unable to make up their minds, appear content to sit on the fence (Stubbs 1983).

It is not the purpose of this chapter to resolve these disputes. Rather what will be attempted here is a presentation of some of the particular conditions which make the economic analysis of the industry singularly difficult and which therefore serve to support the above controversy. More specifically, the operational differences between liner shipping and typical manufacturing, the problems and implications of its cost structure for pricing, the difficulty of evaluating the nature of its competitive environment and identifying where exactly the public interest lies in liner shipping, will all be addressed. In this way it is hoped to clarify the debate and enable a more complete evaluation of the conflicting arguments while at the

same time isolating the key areas where contestable market theory may hopefully shed some new light.

SOME DIFFERENCES BETWEEN LINER SHIPPING AND MANUFACTURING

In terms of its operational characteristics, liner shipping is different from most manufacturing industries in that its output cannot be stored or adjusted rapidly.

Concerning the storage problem, the physical output produced by liner companies, namely transportation services, cannot be put into inventory, if unsold, for later resale to the market. The revenue potential of shipping space is thus irretrievably lost, if unsold, unlike that of a normal manufactured good.[1] This situation, in turn, has the following implications. Firstly, marketing experiments become much more risky than for manufacturing: thus if the latter were to experiment with a price increase which proved unsuccessful, the unsold merchandise could later be resold at an appropriately reduced price with consequently relatively little long term loss. This clearly would not be possible for the liner operator who would therefore find it much more costly to alienate the market if only temporarily. More generally, the costs in the form of irretrievably lost revenue of even a temporary loss of custom mean that stable patronage is of relatively greater importance to the shipowner than the manufacturer and therefore the former is likely to be more risk averse.

Secondly, the possibility of a voyage commencing with unsold space may induce of the ship operator extraordinary measures to attract custom which may include rebating or other immediate attempts to steal customers from rivals (Ellsworth 1979). Over the longer term, the persistent existence of unused space is likely to encourage strategic policies of cargo attraction that may include pricing incentives to non-traditional commodities and market development initiatives.

The significance of the above factors is that they indicate reasons why the industry may have developed the practices of loyalty ties, conference agreements and rate differentiations other than the calculated restraint of trade, though if you can get away with it the latter too is obviously contributory to the particular interests of profit seeking firms. The possibilities for this, however, are a

1. An exception to this rule, however, is the newspaper industry: nobody wants to buy yesterday's papers.

function of the industry's wider competitive environment, which will be addressed subsequently.

Turning now to the flexibility of production, it appears that manufacturing industries are better able to accommodate variations in the pattern of demand than are shipping companies. The ability to stockpile output, as discussed above, contributes to this as adding to or withdrawing from inventories when demand is unexpectedly low or high permits the maintenance of a steady level of output and a consequential constant utilisation of plant while simultaneously satisfying market demand. For the liner operator, however, saleable output is only what can currently be purchased, that is current demand, and changes in this of necessity imply changes in capacity utilisation with consequential direct changes on production costs.

With respect to the general ability of producers to change the physical volume of available output, the manufacturer has advantages additional to those conferred by his inventory capability. In particular, through more intensive utilisation of his given fixed factors and the employment of more variable inputs, output can readily be expanded in the short run. Similarly, output can normally readily be reduced by slowing the production line with a consequential saving on variable costs.[2] In liner shipping however, such short-run changes are much more difficult to effect because the need to provide a demanded frequency of service limits the immediate elasticity of supply. In particular, capacity reductions are very difficult to introduce to the market as these normally require the withdrawal of individual vessels and this in turn will usually reduce the supplied frequency of service. Consequently, whereas in manufacturing a reduction in the volume of output will have no effect on the quality of the commodity produced, in liner shipping output reductions will simultaneously reduce the quality of the service provided and therefore may tarnish user perceptions of the carrier concerned (Jansson 1974), especially if it means adding to the users' inventory costs.

The inability of carriers immediately to change the physical volume of output supplied when coupled with the need to supply its target market with a demonstratable service poses additional difficulties in the

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2. It should be noted that manufacturing firms typically incorporate into their plant a calculated capability for flexible production runs so as to facilitate the accommodation of demand variability (see for example Koutsoyiannis 1979, 114).

output dimension. Concerning service, what the customer ultimately wishes is for his cargo to be moved when he requires it to be moved. Now the aggregate volume of shipping space demanded is prone to cyclical, secular and random variation, a variation which the carrier must be able to accommodate, to maintain customer goodwill, even though supply is characterised by inflexibility. Operationally, this means that the need to supply a quality service requires a volume of capacity sufficient to cope with expected variability of cargo offerings and this in turn translates into a quantum of normally supplied capacity in excess of average requirements. More properly, this excess should be termed 'contingency' or 'reserve' capacity as far from being unnecessary or superfluous, it may be the only practical way by which the carrier can accommodate unexpected peaks in demand. Additionally, such capacity may be deliberately supplied so as to minimise container handling and repositioning when the cargo mix and trade pattern are complex.

Carrying such reserve capacity, however, imposes additional costs since unit costs normally vary inversely with load factors (see below). The carrier, then, in deciding if or what amount of reserve capacity is required will have to balance the costs of holding ordinarily idle capacity, the ability and costs of chartering additional tonnage to meet peak requirements, the price and service combinations the market will accept and the costs and implications of any such strategy on the return leg of its route and on its general competitive position in the markets and routes it serves. This is a considerably more complex undertaking than the output/inventory decisions of a typical manufacturing firm.

The above arguments have still further implications. In particular the possibility that carriers may require as a legitimate business strategy a margin of reserve capacity makes it difficult a priori to assess if and to what extent any unused space on a particular route is really superfluous rather than a service imperative, especially in the light of possibly varying conditions on different voyage legs.[3] Compounding this identification problem is the fact that the liner industry currently displays certain characteristics which undoubtedly generate a propensity towards global excess capacity. An inflated world ship building industry and the recent entry into shipping of many national lines could be cited as political sources of excess

3. More emphatically, modest reserve capacity on the heavy leg of a voyage route may translate into very substantial excess capacity on the lean leg.

shipping capacity. The increased productivity of new generation container ships and the indivisibility of the investments they represent are likewise contributory factors. These conditions, however, would not be a problem if old, technologically obsolete or more generally surplus tonnage could be scrapped at an appropriate rate. But this is just not the case. In liner shipping, the new does not necessarily replace the old as the technical superiority of the former does not necessarily imply economic superiority over the latter. Vessels are long-lived assets and with their capital costs, wholly or largely written off, and crewed with cheap third world labour, old, technologically dated tonnage may remain competitive with the most modern and sophisticated of vessels (UNCTAD 1975).

In being of such a nature, shipping is again different from manufacturing. There is no way, for example, that open hearth furnaces can compete with integrated basic oxygen steel making, and even if it could, with suitably cheap third world labour, the combination would be impossible to attain given the immobility of the capital in place. The new, then, does kill off the old.

The long-lived nature of vessels also means that even under the most utopian of competitive conditions, there is no guarantee that surplus tonnage could be eliminated by the market place alone. Under such conditions, competition would obviously be intense and many firms may not survive. But the sale of the assets of the liquidated provides opportunities for cheap entry by others and therefore the physical capacity of the industry may not decline to a level appropriate to the conditions of demand simply through corporate extinctions. Remember also that the capacity/service trade-off means that irrespective of market structure, it is intrinsically difficult to reduce capacity through fleet reductions by existing or surviving firms.

In terms of the analytical consequences of the above, one is faced with the difficulties of firstly measuring the extent of any excess capacity, given the need to distinguish excess from reserve, and secondly the problem of assessing to what extent any measured excess capacity is a function of, for example, conference organisation - as many believe[4] - rather than exogenous environmental conditions. Additionally, on the normative side, there is a major problem in determining a priori the consequences for available capacity and service frequency of a regime of open competition. In particular,

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4. For example, see Cassidy (1981a).

appeals to text book theory or to the example of other industries seem rather unconvincing as a guide given the juxtaposition of a unique political environment and the service imperatives of scheduled transportation.

THE PROBLEMS OF IDENTIFYING APPROPRIATE COST/PRICE RELATIONSHIPS IN LINER SHIPPING

For the everyday consumer, prices which are 'fair' or 'just' should be related and preferably equal to costs. For the economist too, the relationship is important since in the absence of externalities a price equal to marginal cost can be shown to maximise economic welfare (see for example Bator 1957). In the context of liner shipping - and for that matter many other capital intensive industries - the relationship is not quite so clear cut as their operations have certain characteristics that arguably mitigate against both the possibility and desirability of cost-based prices. In this respect it is possible to isolate three separate problem areas relating to insurance externalities, cost and utilisation relationships, and the common cost problem.

Insurance externalities may arise if the market is unable to fully isolate, and accordingly price, the separate utilities conferred by long-term services. In this respect, the kind of service provided by conferences is typically long-term in nature and as such it shares some of the characteristics of a telephone service in that the potential user has immediate access to it whether he needs it or not. Now for the 'insurance value' of access to the phone service the potential user pays in the form of the fixed rental price but the potential shipper, in contrast, faces similar security of service but pays only when he actually utilises it. From the carrier's point of view this means that some of the costs of his long-term service are independent of use and therefore the charges for use must include payment for both direct costs and the independent service costs. Operationally, this means that for a long-term service to be financially viable the prices charged must be sufficient to recover both direct user costs and the insurance costs consequential on supplying access to the service. And as, unlike telephones, there is no way of recovering insurance or access costs from potential users, it is actual users that must bear the full costs.

Consequently in liner shipping where private operators endeavour to supply a long term service, financial viability requires prices that in effect result in actual users cross subsidising potential users,

or, expressed in more practical language, in frequent users cross subsidising casual users.

To a certain extent the market does compensate for demanded quality differences in that itineraries and frequencies are usually tailored to the needs of the principal customers and such customers may also receive lower charges in consequence of loyalty ties or perhaps time/volume contracts. The principal difficulty, however, relates to the problem of pricing over the business cycle, in particular, of attempting to recoup losses consequent on maintaining services when demand was low through appropriate prices levied on users when demand was high. The difficulty here is that not all operators are long-term suppliers. Some entrants may supply just short-term services and may arrive only when demand is high and as such may have no previous losses to recoup. In consequence, they may be in a favoured position to undercut the long-term operators and jeopardise their viability. In essence, then, there is a potential conflict between the services of long-term operators - whose prices must include premia for both use and access - and the short-term hit and run carriers whose prices need recover only user costs. This conflict, in turn, may be attributable to a failure of the market to completely accommodate service differences, particularly as it relates to the pricing of ensured access to liner services (Davies 1985).

The analytic objective of the above discussion was not to lay out another apology for loyalty ties but simply to point out that there is more to a liner service than carrying cargo from A to B at a single instance in time. The added dimension of continuity necessarily has a cost component that somehow must be priced. This, however, is not easily or unambiguously accomplished in a common carrier type setting where many different customers have undoubtedly different service needs and as in the case of attempting to charge for the benefits of a public good, there is always the incentive to underestimate true received benefits and 'free-ride' on the service levels demanded by shippers whose needs demonstrably are long-term.[5]

Turning now to the relationship between unit costs and capacity

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5. Bennathan and Walters (1969a) argue that these difficulties could be overcome by the establishment of a futures market for liner services. Whilst this possibly could work for certain large shippers, it does not overcome the problem of others free riding on their backs and neither does it seem practical to accomplish in a setting of many relatively small shippers with differing service needs each of whom may be too small to negotiate individual service provisions.

utilisation, it is instructive initially to treat shipping space as a homogeneous single product - TEUs. Holding this assumption, it is generally accepted that for all but the most complex of container trades, unit costs fall continuously as capacity utilisation increases (Ellsworth 1979, Davies 1983). The essential reason for this is that the majority of costs incurred in supplying a liner service are fixed, in consequence of its capital intensiveness and the constant, committed nature of its operations which means that items such as fuel and labour - ordinarily classified as variable - become fixed too in the short-run. Indeed the only variable costs incurred are those associated with cargo handling costs - costs which are usually constant per unit - and when containers have to be moved while full or not, for repositioning, some of these too could be classified as variable (Ellsworth 1979). Consequently, the kind of cost structure which emerges is such as illustrated in Figure 3.1, which shows the relationship between unit costs and load factors for an individual vessel.

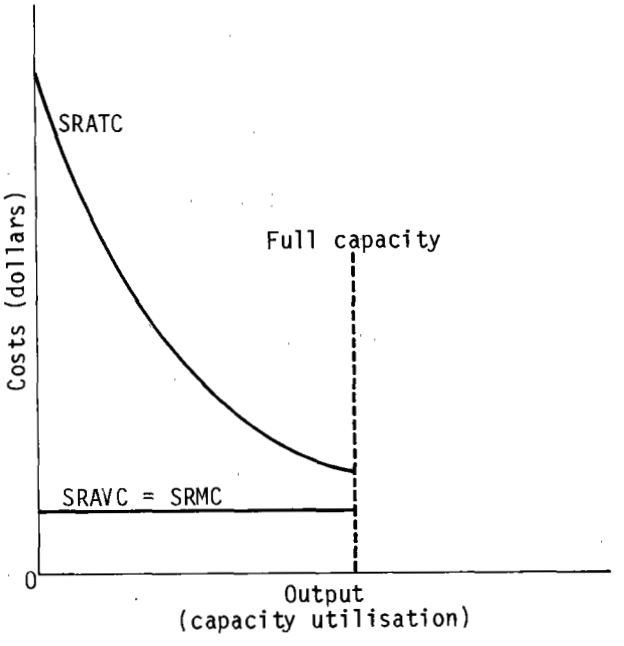

Figure 3.1 The relationship between unit costs and load factors for a single vessel

The implications of this cost structure are as follows. Firstly, unit costs are very sensitive to the degree of capacity utilisation, being minimised at full capacity. Secondly, average variable or marginal costs are less than average total costs at all utilisation levels less than 100 per cent full. The degree to which they are less, however, depends on the load factors achieved: at high load factors, with much cargo being carried and therefore substantial total cargo-related costs being incurred, total variable costs will necessarily constitute a large proportion of total costs and therefore, as the diagram shows, the difference between average total and average variable costs will decline as utilisation increases.

Given this cost structure and the role played by load factors, it is an interesting analytic exercise to relate short-run, individual vessel, costs to a long-run situation where the fleet can be adjusted. In this respect, the overwhelming weight of research shows that liner shipping is subject to constant returns to scale[6], which means that in the long-run capacity adjustments will be made by a firm adding to or withdrawing from its fleet vessels of a generally constant size. Against this background the costs of a hypothetical fleet of three ships are illustrated in Figure 3.2. The problem, however, is to relate them so as to construct a single, constant cost, long-run average cost curve. If all ships operated consistently at full capacity then the long-run costs of operating the fleet would clearly be LRAC = LRMC 100 per cent. This, however, is impossible under the practical operating conditions of scheduled transportation. If the fleet operated, more realistically, on average at 70 per cent load factors, the unit costs incurred would be LRAC = LRMC 70 per cent.[7] Consequently, even though the industry may exhibit constant costs, LRMC - the yardstick for socially efficient pricing - is nevertheless not a fixed datum but a variable whose level is influenced by average sustainable load factor. As a pricing guide, then, reference to marginal costs is insufficient in liner shipping, consideration too must be made of the possible level of average load factors under optimal realisable conditions, a level which will be influenced by the service frequencies offered, capacity indivisibilities, the possible need for reserve capacity, lean leg and heavy leg considerations, pricing policies and the local effects of global over-tonnaging.

The above statements have been made on the basis of assuming that the

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6. Cassidy (1981a, 161) cites a full page of articles all confirming this.
7. Gardner (1978) uses a LRAC curve similar in construction to this.

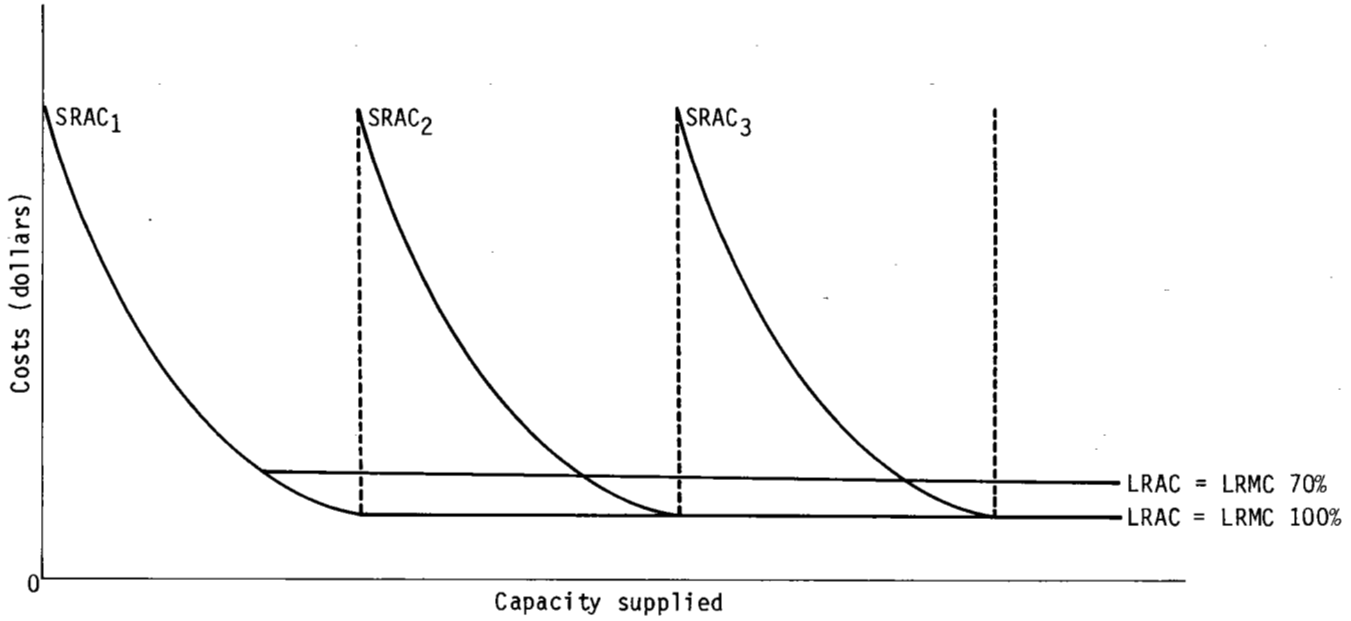

Figure 3.2 Fleet adjustment and long-run costs

output of the liner industry is a single product, namely homogeneous TEUs. Although this abstraction is useful in that it focuses attention on the importance of load factors, its use beyond that is nevertheless limited as liner shipping is more in the nature of a multi-product undertaking. In particular, the industry supplies services to often hundreds of shippers many of whom may have cargoes with differing physical characteristics and handling requirements and for whom the marginal evaluation of the service in place may vary greatly. This creates added difficulties for cost-based pricing since the great majority of the total incurred costs are common to the service, being independent of specific cargo liftings. In contrast, cargo-related costs, irrespective of the time period under consideration, are relatively small especially, as noted above, in a time of over-tonnaging. This in turn creates difficulties in respect of the appropriate allocation of common, overhead costs to the separate cargoes utilising the service.

The above problems are further compounded when one considers the backhaul of a liner route. If the forehaul and backhaul were completely in balance no problem would arise as each could be costed and priced separately. If the backhauls were empty - likewise there would be no problem: the backhaul is a necessary input to the forehaul and therefore its costs must be fully borne by the forehaul cargo. On many liner trades, an intermediate situation is encountered with one relatively heavy leg and the other relatively thin. As such, the situation is similar in nature to the case of joint production (as in the familiar meat and hides case) in that the costs of production are clearly common to both goods or services while the revenue potential of each is independent of the other. Given this, how should they be priced? Cassidy (1981a, 101) suggests that competitive peak-load pricing is in order though this approach is questionable as the peak-load pricing problem is more commonly understood to arise in markets where for a *given* service demand displays a certain periodicity. And just as most diners would agree that hides and steak are not the same, neither are forehauls and backhauls and therefore are they appropriate for analysis by way of peak-load pricing models.

In essence, the backhaul, even when its underutilisation is minimised through deliberate triangular sailings, is part of a system of services a carrier will simultaneously attempt to market, the costs of which are all interrelated and in a large measure, common as opposed to being specific to any particular cargo on any particular voyage leg.

Finally, costing in the industry is additionally complicated by the

fact that different lines may have different cost structures and cost levels. As noted previously, vessels of different technological vintages can remain in competition in consequence of differing manning, fiscal and regulatory possibilities available under the international environment and this, in turn, may influence cost structures and possibly levels. Moreover, vessels of qualitatively different technologies may also compete in overlapping markets. The fully cellular vessel, the combined bulk/container carrier, aircraft, and on some routes, land carriers, may all simultaneously be in competition. The costs of each, however, may be substantially different in both structure and level. Finally, costs may differ between operators in consequence of their specialisation in different target markets. In particular, where sailing patterns overlap the backhaul of one carrier may coincide with the forehaul of another: consequently, the same cargo may be judged as being required to contribute only perhaps to the marginal costs of the former but to the full cost of the latter.

Against this background, costing and the relationship between costs and prices are clearly difficult to isolate in both principle and practice. The favoured resolution adopted by conferences has been to downplay the uncertain cost side in the setting of their prices and instead to adopt value of service pricing[8]: that is to assess the price levied on each cargo and its consequential contribution to overheads and profit on the basis of its ability to pay (for example see Bryan 1974, Schneerson 1976, Evans 1977). The outcome has been the familiar differentiated rate tariff under which different commodities with different unit values and different transport alternatives are usually each quoted a different rate.

For the academic researcher and policy maker alike, the above costing issues raise the following problems. Firstly, given the nature of the service provided, the endogenous operational and the exogenous institutional factors influencing average load factors and the commonality of the system costs of the service, it is very difficult to assess the real costs incurred in carrying any particular commodity, or to establish shadow prices for an ideal or efficient service which may be used to evaluate the reasonableness of any particular freight rate. Secondly, it is very difficult to assess the

8. It should not be supposed, however, that costs are completely ignored as several studies have shown stowage factor - a cost element - to be a significant explanatory factor in liner pricing (see for example Schneerson 1976).

welfare consequences of the value of service pricing policies conferences evidently have adopted. Does it result in cross-subsidisaton and if so does this necessarily mean that some shippers are being unfairly discriminated against? Finally, there is the problem of comparing the total revenues produced by this type of pricing with the total costs incurred. Given the complex cost structure sustained in supplying a liner service and the complex freight tariff employed - a complexity, remember which is based on different precepts - is there any reason to expect that market forces would lead towards a normal profit equilibrium, or, in contrast, is the situation not symptomatic of monopolistic price discrimination?

THE DIFFICULTY OF ESTABLISHING NECESSARY AND SUFFICIENT CONDITIONS FOR EFFECTIVE COMPETITION

The possibility of shipper abuse, of sustaining chronic inefficiency or of earnings protracted above normal profits are all contingent on the possession of market power. The assessment of market performance demands an evaluation of the extent of market power yet as noted in the introduction to this chapter, such evaluations have evoked an extreme range of views. Essentially, this is because the measuring of market power is not unambiguous and therefore its extent usually has to be inferred indirectly. This, in turn, invites the possibility of considerable subjective interpretation. The following section will elaborate on the nature and consequences of this.

Under the optimal economic performance ideally realised by perfectly competitive industries, firms are without economic power. Each is so small and part of a population so numerous that, either individually or through any likely association, none is in a position materially to influence the price of the product or service sold, the fate of any particular rival, or any other parameters of the industrial and market environment. The relationship between firms will be one of atomistic competition - a relationship enforced by the large numbers structure - and this behavioural relationship will in turn induce of firms optimal economic performance.

As the number of firms in the industry becomes fewer, and as its structure changes through oligopoly towards monopoly, behaviour and performance admit of other possibilities. In particular the growth in firm size that necessarily accompanies such structural changes allows the possibility that a single firm may be able to damage, or kill off, current rivals while the reduced number of firms, together with the realisation that they may as likely be a victim as a

perpetrator of corporate murder, facilitates collusion. This power over the competitive process becomes, in turn, a power over the consumer.

The technology of large scale production renders such structural changes inevitable in much modern business though whether or not the kind of behaviour envisioned above is equally as inevitable is not so clear cut. Admittedly its possibility may be measured using various indices of concentration though these do not broach the issue of actual behaviour. Thus, a moderate concentration ratio might conceivably coincide with a general pursuit by all concerned of a quiet life while a much higher figure may be compatible with a corporate giant being challenged by a small, innovative, aggressive and expanding opponent. And it is the latter case where competition is likely to be strongest. In addition, the actual measurement of industrial concentration is not without controversy. An industry is a classification of firms and several bases for classification may be identified: most frequently 'similarity of products' is the criterion used though this may grossly underestimate the number of potential competitors available in situations where the technology of production could allow firms currently serving other markets to readily adapt and enter the market in question (Lee 1983; Koutsoyiannis 1979, Chapter 1) or where foreign firms could readily enter the domestic market.

A recognition of these difficulties led to the development in the 1940s of the concept of 'workable competition' (Clark 1940). In essence, this concept recognised that it is market performance which ultimately is of importance and that this performance in turn may be influenced as much by specific technological and institutional conditions as by abstract structural or behavioural factors. But since it is recognised that industries may vary greatly in terms of the performance that is technologically or institutionally possible amidst their varying market conditions, it becomes very difficult to define generally what constitutes workably competitive performance. And this was the basic problem with workable competition as a normative standard: rather than establishing an objective guide, it relegated the judgement of what is workable to the eye of the beholder (see for example, Sosnick 1985).

In terms of liner shipping this process is illustrated in the problem of trying to assess how much independent competition is needed to keep conferences honest. Would a 5 per cent or a 50 per cent share of the trade be sufficient or would the mere presence of any outside

competition be potentially detrimental to performance through inhibiting the tightest possible rationalisation? The invocation of industry specific performance factors similarly renders debate on the potential consequences of banning conferences ripe for subjective assessment.

Compounding the difficulty of assessing the performance consequences of actual conference/non-conference market shares is the problem of determining the competitive effects of new entry or potential entry. On its own it is impossible to judge, for example, whether a single instance of entry should be interpreted as a testament to competition or else, when contrasted against some unspecified larger number, as evidence of the general difficulty of new entry and therefore as confirmation of the monopoly power of conferences. Thus, some analysts have argued that for the entry of independents '...to create a serious restraint on conference monopoly power there would have to be an inexhaustible supply of willing, well financed entrants....', (Department of Justice 1977, 74-75) while other researchers, in contrast, have asserted that '....even if there is only one firm in an industry it is still oligopolistic, provided that the threat of potential entry exists.' (Gardner 1978, 199).

In essence, all the above difficulties are symptomatic of the general problem of assessing the competitive environment and the consequential possibilities for customer abuse in an oligopolistic setting. There are, unfortunately, no easy answers since the problems recounted above render the estimation of such more in the nature of an essay in persuasion than a task for simple measurement. Market shares admittedly are important but so too are the corporate practices and competitive strategies currently employed, the conditions and rate of entry, technical changes, the bargaining power of customers and suppliers, profit levels and investment policies, and any political constraints interfering with the competitive forces, the nature and importance of which all require judgement and interpretation as much as commensuration.

Fortunately, the necessary judgement can be facilitated through the applications of an appropriate conceptual model to focus and discipline the analysis and to isolate the situational consequence of the above parameters. And in determining what is appropriate, economic methodology provides some guidance through emphasising the predictive power of the model (the customary Friedman perception)

and/or the realism of its assumptions (Blaug 1980), though the scope for subjective assessment is never completely eliminated.[9]

NORMATIVE ANALYSIS AND THE IDENTIFICATION OF THE PUBLIC INTEREST

If positive analysis suggests the presence of efficiency failings, it carries with it normative implications in terms of the prescription of remedial measures to overcome such failings. The codification of appropriate remedial policy presupposes, however, a prior identification of the public interest which the policy itself is trying to protect. In liner shipping - as in most other industries - there is no unique concept of public interest. Instead there exists a variety of different interest groups amongst whom there is no necessary consensus of particular interests. Thus, the suppliers of shipping services - the company shareholders - may see their particular interests served by greater profits while the users, the shippers, may identify their interests with low freight rates and efficient services. In addition, workers may have a legitimate interest to promote in the form of high wages and favourable conditions of employment. Finally, the state itself may identify a wider national interest such as trade security, or the need for earning foreign exchange or the desirability of being able to supply logistical support to the armed forces in the event of any security emergency.

The existence of such disparate interest groups renders normative evaluations of industry performance difficult since quite obviously the particular viewpoints of some groups is necessarily or potentially in conflict. Thus a conclusion of monopolistic profiteering by conferences would be judged undesirable by shippers and ultimate consumers though at the same time this may be favourably received by shareholders, by labour and possibly by certain government officials if profits are seen to contribute to a healthy merchant fleet which, in turn, is regarded as vital to the country's security interests. Sensible policy thus demands that the particular interests of the

9. To illustrate, those who may judge a single observed instance of entry a testament to competition may regard an open model appropriate whilst others perceiving it to confirm the general difficulty of entry may infer that it suggests a 'closed' model to be a better abstraction. This problem is especially pronounced if the predictions of a model are difficult to test because of problems in the measurement or availability of the requisite data. This is certainly true in liner shipping where, as noted in the text above, cost analysis renders estimates of efficiency very difficult and where data shortages are a perennial problem.

different groups be initially set out in order of priority or be appropriately weighted. Without such an explicit ordering there can be no way of assessing the effectiveness of the policy in place. Inevitably, this demands that some groups are accorded greater importance and more favourable treatment than others.

It would be wrong, however, to overestimate the potential for conflict between different groups for in many ways it is less in liner shipping,or general transport, than for other industries, especially in relation to the interests of shippers and shipowners. As the Grigor Report (Department of Transport 1978) emphasised, shipowners can only make profits if they have cargo to carry and this in turn demands a sensitivity to the commercial needs of shippers. Additionally, as the costs of unused space are so high in liner shipping, in consequence of the inventory problem, pricing customers out of their markets, even temporarily, is very costly to the shipowner. The fortunes of both groups are clearly interdependent though at the same time the *maximisation* of the interests of either one is unlikely simultaneously to maximise the interests of the other.

In sum, then, it is evident that in liner shipping, the public interest comprises a set of differing particular interests some of which are actually or potentially in conflict. As the interests of all groups cannot simultaneously be maximised normative analysis demands the framing of an explicit social welfare function or weighting of the interests of each group. This, however, has rarely been done. Customarily, the economist accords greatest weight to the interests of the consumer though in liner shipping political, diplomatic and national defence considerations are arguably of greater importance than in most other industrial sectors. With greater scope for the legitimate prosecution of varying interests, normative analysis in liner shipping is as much subject to debate as its positive counterpart. The inevitability of personal judgement is again instrumental here as the framing of an appropriate welfare function is something that plainly does not lend itself to a mechanistic approach. This, however, does not mean the task should not be attempted, in contrast, it must if policy is to be given any direction.

CONCLUDING COMMENTS

This chapter has endeavoured to provide some reasons why the economic analysis of liner shipping is an extremely difficult task and therefore why it supports such a range of different conclusions. In

the interests of 'rigour' or the need to argue a firm case, such difficulties are often ignored or downplayed in importance, yet if analysis is meaningfully to progress they must be addressed. Some of the issues, in particular the normative considerations discussed last, are perhaps better handled by the politician than by the economist. However, the economic consequences of current or prospective policy together with the costing problems, the assessment of the competitive environment of the industry and the implications of its singular economic characteristics all lie clearly within the province of the economist. It is hoped that the subsequent application of contestable market theory will be able to cast some new light on certain of these issues.

CHAPTER 4 A SUMMARY OF THE THEORY OF CONTESTABLE MARKETS

The theory of contestable markets is a set of ideas and analytical techniques whose object is the positive analysis and normative appraisal of modern, multi-product, imperfectly competitive firms and markets. In disparate sources many of the constituent innovations of the theory have been around for some time but it was not until 1982 that they were codified and systematically integrated into a coherent work (Baumol, Panzar and Willig 1982). In that same year they were popularised and given a hard sell to the profession by Baumol in his controversial Presidential Address to the American Economics Association (Baumol 1982a). In response to the self-congratulatory tone of that address, the ignoring of antecedent contributions and some exaggerated claims for its generality and policy relevance, the theory has been in receipt recently of considerable criticism. Consequently, while some of the components of the theory have been accepted by the profession virtually without reservation others are the subject of continuing debate.

In view of such a background, it will be the purpose of this chapter to review the principal themes of the theory of contestable markets and then to relate them to recent criticism in order to indicate the current measure of acceptance they command within the profession. With respect to its principal themes and innovations, these essentially are three in number - the contestability criterion as means of assessing the nature, potency and the behavioural and structural consequences of market forces, cost analysis in a multiproduct setting, and finally, the morphology and stability of market equilibria.

COMPETITION AND THE CONTESTABILITY CRITERION

Although it has implications for the dynamics of the competition between existing firms, the contestability concept has been cast in terms of a limit-pricing setting against which the nature of entry barriers plays a dominant role. In this respect, the contribution of the concept can be understood best as a reaction against established

ideas in the field. This, in combination with the over-riding importance of assessing the nature of competition in the liner shipping debate, suggests an initial statement of the traditional view may be in order to provide some perspective against which to view the approach taken by the contestability concept.

Conceptual antecedents

As noted in the previous chapter, traditionally in economics the strength of competition has been perceived to be a function of numbers. As the quantity of firms in an industry is reduced from the 'large numbers' of perfect competition, the disciplining power of market forces is seen progressively to diminish, as not only are the number of actual competitors reduced - something which in itself may facilitate collusion - but simultaneously barriers to new entry competition will increase in magnitude. The logic of this latter assertion, however, depends on a prior conception of both a new entrant and a barrier to entry. In this respect, Joe Bain has played an instrumental role in defining both. For him an entrant was a new, independent, legal identity that brings to the industry new physical productive capacity that previously did not exist; as such the entrant is not only new in the sense of being new to the business but also in terms of being newly established (Bain 1965, 5). Thus Bain defined out of his analysis cross entry and conglomerate entry and one is left with the picture of the representative entrant as being small, financially weak, lacking collateral or accumulations of profit and being unfamiliar with the business. For such firms the absolute or money costs of entry are likely to be high indeed.

Similarly Bain conceived an entry barrier to arise from '....the advantages of established sellers in an industry over potential entrant sellers, these advantages being reflected in the extent to which established sellers can persistently raise their prices above the competitive level without attracting new firms to enter the industry' (Bain 1965, 3). The significance of his definition is that again it focuses on the absolute costs of entry and indeed he specifically isolated absolute cost advantages along with product differentiation and economies of scale as individual entry barriers. All of these indicate the money costs of entry to be higher the larger the required scale of entry and thus one may infer that the potency of new entry competition will diminish whenever the technology of production requires fewer, larger firms.

Barriers to entry, in addition to retarding the rate of actual new entry, will also diminish the power of market forces by diluting the

strength of potential competition. Attitudes to the nature and consequence of potential competition have varied substantially over the last 80 years. At the turn of the century its possible impact in disciplining even highly concentrated industries was noted by J.B. Clark (1912). Concern with potential competition faded, however, with the development of the neoclassical models of perfect and imperfect competition and monopoly which only take cognizance of actual entry. It was rediscovered, however, in 1939 by Hall and Hitch (1939) and subsequently by Andrews (1949) and Bain (1949), with the latter usually being credited with first incorporating it into a formal model of price determination. But subsequent writers were to cast doubt on its potency. Thus Stigler (1968) contended that it is impossible to gauge the strength of potential competition without recourse to the rate of actual new entry and therefore the former in itself becomes obsolete as an explanatory variable. Others, such as Gaskins (1971) and Kamien and Schwartz (1971) calculated that even if potential competition was a reality, a large firm or cartel would not normally price to deter it in toto; rather it would seek to maximise short-run profits regardless of the effect this may have in turning potential competitors into actual competitors, the idea being that the present value of the consequential declining profit stream starting from its initial high level would exceed the lower but constant profits of an entry detering strategy.

Although there has thus been no general consensus as to the significance of potential competition, the concept found a home in the celebrated limit pricing models of Sylos-Labini (1962) and Modigliani (1958) which are important in the emphasis they palce on economies of scale as an entry barrier. Essentially their thesis is that the technology of large scale production which brings about oligopolistic or monopolistic structures renders the incremental output of an entrant operating at minimum efficient scale so large that when added to existing industry production it may cause the market price to be depressed, possibly below unit costs. In fact the incumbents, recognising this, will explicitly adjust their own output so as to make this possibility an inevitable reality. Potential entrants, seeing such behaviour, stay out thereby leaving the incumbents free to enjoy supernormal profits. An important exception to this general rule was supplied by Demsetz (1968) who showed that even under a licensed natural monopoly, a case where scale economies are most pronounced, potential entry has the power to force the incumbent to price competitively provided that periodically the monopoly franchise is put out to tender. This, however, was seen largely as a curiosity of relevance only in the special circumstances of franchise auctions (Williamson 1976).

In sum, then, traditional attitudes to competition have generally regarded its strength to be an inverse function of the scale of production: the larger the scale of output efficient production requires, the fewer will be the number of firms and therefore actual competitors in the resulting industrial structure, the less potent will be potential competition and the greater will be the absolute cost of entry thus minimising the incidence of Bain-type actual new entry.

There was, admittedly, some reaction in the profession against these basic perceptions. In particular, cross entry by existing firms diversifying or integrating vertically into other markets cast doubt on the consequence of absolute money costs as an entry barrier. Likewise the possibility of multi-product production questioned the effect of scale barriers since it allowed not the entire but just a fraction of a firm's total productive capacity to be channelled into a new product for a new market (Brunner 1961). But it was left to the contestability principle to fully develop the nature and implications of these doubts.

The contestability principle - competition without risk

Drawing on the financial implications of cross entry, the idea of contestability focuses on the *risks* of entry and it shows that risks are not necessarily a function of the magnitude of any investment but rather are determined by the possibility of getting your money back if things go wrong after entry. Now if an entrant perceives that he may leave the industry, if conditions so warrant, without impediment and has the ability to recoup on departure any costs (normal depreciation aside), irrespective of their amount, incurred in consequence of his initial entry, he will judge himself to be in a riskless, 'no-lose' situation. Additionally, if one couples this with a technical ability to compete, there exists a perfect recipe for potential competition decisively to discipline the behaviour and performance of incumbent firms.

The costs of exit and the ability to compete are thus seen to be the key factors influencing the strength of new entry competition. Concerning the former, the theory shows that it is the significance of sunk costs in the requisite investment that determines the costs of exit. If capital is geographically fixed, if it is use-specific and durable, sunk costs will be high and exit difficult and costly because its immobility limits resale opportunities, its specificity limits alternative uses and its durability means that the investment may take years to be fully depreciated. In contrast, if the capital employed

is reusable, saleable, rentable or mobile, sunk costs will be low and exit consequently relatively costless and easy. Thus the risks of entry - the difficulty of recouping one's investment - are seen directly to correlate with the significance of sunk costs.

It should be noted here that there is no necessary correlation between economies of scale and sunk costs. It is quite possible for technologies admitting of substantial economies of scale to give rise to very few sunk costs which in turn means that the notion of contestability is not bound to any particular industrial structure (Bailey 1981). The presence of a high proportion of fixed costs in an industry's cost structure likewise does not necessarily imply the presence of significant sunk costs (Baumol, Panzar & Willig 1982, 288-90). By identifying these distinctions Baumol's team was able to sever the connection between economies of scale or capital intensive methods of production and the risks and consequential real costs of entry.

Turning now to the determinants of the ability of entrants to compete, two factors are of importance here. Firstly, entrant and incumbent must be symmetrically placed, that is, they must have equal access to the appropriate technology of production, they must be subject to the same regulations and the market must perceive them to produce outputs of similar quality. Secondly, incumbent firms must not be able to prevent entry through responsive pricing. In this respect, even if the risks of entry are zero an entrant may nevertheless still find it impossible profitably to enter a market if the existing firms can immediately respond by adjusting their prices to match or undercut him. If such behaviour is anticipated, zero profits would always be the expected net payoff of entry and therefore irrespective of the incumbents' current prices and profits, entry would be pointless and therefore as a competitive force, of no consequence.

The ability of entrants to compete successfully thus demands some mechanism to limit the opportunity of incumbents to engage in responsive pricing. This condition, which has come to be known as the 'price sustainability condition', can be realised in either of two ways. Firstly, if incumbents were only able to change their prices more slowly than their customers could respond to price differences, an opportunity is presented for a firm to enter, to undercut the incumbents, steal their customers and make a positive profit until such time as the incumbents are able to change their prices. A second possibility is that prior to entry, the entrant secures a contract with customers so as to guarantee him fixed prices and a positive

profit over the duration of the contract period. During this period retaliatory action on the part of incumbents is obviously precluded.

In sum, then, the ability to compete without risk that underlies the contestability principle requires the fulfilment of three conditions; an absence of sunk costs, a symmetrical positioning of entrant and incumbent and price sustainability. The consequences of the fulfilment of these conditions are as follows. As in perfect competition, potential entrants are able to evaluate the profitability of entry on the basis of the incumbents' existing prices. If these allow the slightest positive profit, over even a temporary period, entry will be induced until that profit opportunity has been eliminated. Remember if there is money to be made not to enter would be illogical. And given that neither the ability to compete nor the presence of sunk costs necessarily correlate with either scale economies or capital intensiveness, these findings will hold irrespective of the industrial structure demanded by the technology in place.

The performance implications of the above conditions are as follows. Firstly, it is evident that the only profits which can be earned in the long-run are normal profits: the possibility of entry precludes anything else. Secondly, the only way a firm can maintain its market position is to make profitable entry impossible. And this, in turn, will require of it two things. Initially, it will have to sell the demanded output at a price no higher than unit costs of production, for given perfect contestability any prices that generate positive economic profits would automatically induce entry. In addition, the incumbent will have to produce the demanded output at the lowest possible cost as any inefficiency would imply positive profits for more cost conscious competitors, something which again would automatically induce entry. Indeed, and to extrapolate this latter argument, perfect contestability makes impossible inefficiency of any kind. For the firm, this means that its plant must be of the optimum size and utilised with optimum efficiency and likewise there must be no x-inefficiency. The impossibility of inefficiency also means that contestability is incompatible with corporate objectives such as revenue maximisation, growth maximisation, satisficing etc, to the extent that these imply departures from the normal profit, optimally efficient price and output configuration.

Thirdly, the very same forces that discipline the behaviour of firms also serve more generally to shape the pattern of industrial organisation. In particular the impossibility of inefficiency means that in perfectly contestable markets a stable industrial structure

has to be the most efficient possible structure and that structure, moreover, must arise from the free play of market forces. Thus allocative inefficiency becomes impossible because the need of firms to minimise costs when coupled with the forces of entry and exit would deny survival to the inefficient structure just as they would to the inefficient firm. And by symmetry no organisation or co-operative arrangements among firms can be maintained unless they possess some survival value and promote in some positive way general cost efficiency. Indeed, the existence of any such arrangements may have been mandated by the market environment.

Together the above performance attributes amount to a situation the same, or almost the same, as is achieved under perfect competition. What secures this result, however, is not a specific structure but a much more general ability to compete without risk.

If all this sounds like something from Dr Pangloss, it should be emphasised that *perfect* contestability, as discussed above, like perfect competition, is an ideal and as such carries with it no presupposition of necessary existence. Its relevance and operational use are predicated upon the possibility of being able to judge the degree to which the actual characteristics of an industry allow competition without risk. This, in turn, permits an evaluation of the extent to which the actual performance parameters of industrial equilibrium are likely to deviate from those of perfect contestability.

THE MULTI-PRODUCT COST ANALYSIS EMPLOYED IN THE THEORY

The impossibility of inefficiency and the consequential need of firms to minimise costs is clearly one of the most striking implications of a perfectly contestable market. Traditionally in economic analysis cost efficiency is analysed through reference to the level of a firm's average costs. This in turn is influenced by the size of the firm's chosen plant and the consequential degree to which it affords the realisation of economies of scale, as well as by the utilisation of that chosen plant.

In the new theory, however, the distinction between scale and utilisation or between long-run and short-run costs, is shown not to be so clear cut as it is demonstrated that the extent of capacity utilisation can often strongly influence the degree of scale economies. The nature of scale economies, in turn, is shown to be much more complex in multi-product production than in the traditional case when only one output is produced. Essentially, this is because

the concept of (long-run) average costs that is traditionally used to assess returns to scale ceases to have any real meaning when the quantity of output, the denominator of the calculation, is an assortment of different goods. To overcome this limitation three separate measures of scale economy are identified which when used in combination with orthodox (long-run) marginal cost, permit an effective analysis of efficiency and industrial equilibrium.

The first new measure is *ray average cost* which measures the costs generated by adjusting the output of a constant mix of products. On its own it is of relatively little importance since product mixes rarely remain constant as output changes (Bailey and Freidlaender 1982). Its function is primarily to assist in the analysis of a pricing equilibrium.

Of much greater consequence is the measure of *product specific returns to scale*. This addresses the changes in the unit costs consequent on adjusting the output of single product, when the production of all other goods is held constant. The significance of the measure lies in its influence on industrial structure. Thus if the production of a good displays continuous product specific economies of scale then that product line would have to be monopolised if the costs of supplying the market are to be minimised. Associated with this structural mandate is a pricing constraint similar to that of other monopoly situations, namely that under product specific economies of scale marginal cost pricing will not be financially viable because the cost of each additional unit will be less than the average cost of the entire product line, when that product line is itself viewed as an increment to the firm's other outputs.

Despite its importance in the analysis of the determinants of industrial structure, the measure of product specific economies of scale is in some ways weak in that its computation is based on ceteris paribus changes in the output of one product only. As such it cannot fully embrace the behaviour of costs consequential on the simultaneous adjustment of two or more separate outputs. Fortunately, however, these relationships can be captured by the concept of economies of scope.

Economies of scope, the third measure of scale economy, are said to exist when a single firm can produce a given level of output of each product line more cheaply than can a combination of separate firms, each producing a single product at the given output level. In other words, in terms of the costs of the simultaneous production of a set

of products, economies of scope imply that the whole is less than the sum of its parts.

Concerning their origin, economies of scope arise principally from the joint utilisation of inputs. This can occur when outputs are produced jointly, or, more importantly, when the indivisible costs of fixed factors or common overhead facilities can be spread by extending the product line.

It should be noted that the existence of strong economies of scope can be sufficient to confer overall scale economies on an entire product set even if there are constant or some degree of decreasing product specific returns to scale on individual products (Bailey and Friedlaender 1982). To illustrate, if capacity was normally underutilised, substantial economies of scope must be present since the provision of separate production facilities would require a (more costly) duplication of capacity. Moreover, the existence of unused capacity would also mean economies could be reaped by producing additional quantities of specific product types (that is, product specific economies) or a larger quantum of the current product mix (that is ray economies) since it would allow the further spreading of total (common) costs. Thus if unused capacity normally exists, it will serve to shape the nature and extent of multi-product economies of scale and therefore have potential implications for the pricing equilibrium of an industry.

An important side effect of the complex nature of scale economies in multi-product production concerns the determination of necessary and sufficient conditions for natural monopoly. Continuous economies of scale are no longer enough because of the different types of scale economy that can be defined in multi-product cost functions, because of the necessity of taking cognisance of cost complementarities and finally because the new theory also has shown that natural monopoly may be compatible with certain types of decreasing returns to scale (BPW 1982, 30). In multi-product production, then, there is no single unique set of necessary and sufficient conditions for the existence of the structure: in contrast there are a variety of cost combinations that may bring it about. Because of this a much wider definition of natural monopoly is required in a multi-product context than simple reference to economies of scale and to this end contestable market theory teaches that it is *subadditivity of costs* that is the appropriate concept to be used in the formal definition of natural monopoly.

Essentially, subadditivity means that the cost of producing a given

set of products at each and every combination of output and at each and every level of output relevant to the pertaining conditions of demand is less if done by one firm than if done by two or more. It is thus similar in nature to economies of scope except that there is no presumption in the latter than the constituent cost complementarities reign over each and every output level.

MARKET EQUILIBRIA AND THEIR STABILITY

The complex array of cost concepts described above is needed to identify industrial structures in a multi-product setting. The pricing equilibria of those structures, once identified, are much more simply analysed, however, since unlike in orthodox theory where each principal structural type is associated with a different price and output equilibrium, under conditions of perfect contestability only two types of equilibrium are possible. These are the natural monopoly equilibrium and that which is common to all other structures. Both types of equilibrium, moreover, share many common elements such as zero profits, x-efficiency, allocative efficiency and an absence of cross subsidies. The difference between the two types hinges on the actual prices that are charged.

With respect to structures other than monopoly, the firm will have no discretion over price: as in perfect competition all firms must charge a price equal to (long-run) marginal cost. The rationale of this, however, is not now a marginalistic calculus for maximum profit but rather the strategic need to prevent the materialisation of potential competition. For given the way marginal cost is defined, it can be shown that prices either above or below marginal cost can always allow profitable entry by other firms (Baumol 1982a). If they wish to remain in business incumbent firms have no choice other than to price each of their outputs at marginal cost. As this is sufficient to render profitable entry impossible, a stable equilibrium will be the result.

Turning now to natural monopoly, its distinguishing feature is the subadditivity of its cost function. The pricing mandates of the conditions which promote this bring about those characteristics of a contestable equilibrium that are unique to the monopoly structure. In particular, marginal cost pricing, as in the traditional single product case, will not be financially viable in a multi-product natural monopoly. Given this situation, the next best pricing alternative from society's point of view would be for the firm to charge Ramsey optimal prices, that is, prices which are so structured that the relative deviation of price from marginal cost is the same

for all goods and is also inversely proportional to elasticity of demand (Baumol & Bradford 1970). Now Baumol et al have shown that a natural monopolist may well spontaneously do this as it may be the easiest way for it to discern a set of prices that guarantees entry deterence (Baumol, Panzar & Willig 1982, 208-217). Thus whereas in non-monopoly markets a first best, Pareto optimal pricing solution is guaranteed by the forces of contestability, the very same forces may yield a second best solution in the natural monopoly context.

Not all natural monoplies, however, potentially result in such a desirable outcome for under certain circumstances no pricing equilibrium may be sustainable. In particular if market demand requires the incumbent to produce in a region of decreasing returns to scale, or if demand is growing so as to make it desirable for the incumbent to construct a plant capable of accommodating over time the growing market, the incumbent, even if operating with maximal efficiency and charging normal profit prices, may nevertheless still be vulnerable to wasteful and duplicative entry (Baumol, Panzar & Willig 1982, 30 and Chapter 13).

The significance of these conditions is that in their presence there is no guarantee that the existing industrial structure is the most efficient structure even if the market is otherwise perfectly contestable. Moreover, in the absence of government intervention it may be that the only way the efficient structure could be achieved and maintained is if the incumbent were to employ tactics such as predatory pricing or the threat of predatory pricing - expressly designed to kill off actual and to deter potential competition.

SOME CRITICISMS OF THE THEORY AND CONCLUDING COMMENTS

Of the principle innovations offered by the theory of contestable markets, the multi-product cost analysis has had the least contentious reception by the discipline. Primarily, this is because it represents simply a method of measurement rather than a theoretical construct with associated and very strong normative implications. The cost analysis was also fully developed, well argued and much needed and therefore it has been adopted by the mainstream of the profession virtually without reservation. In contrast, the concept of contestability, and its implications for market equilibria, have been the target of considerable criticism especially, in terms of realism, robustness and generality.

With respect to market equilibria, it should be noted that contestability theory does not render obsolete or irrelevant

traditional formulations because the equilibrium conditions described here are generated by *perfectly* contestable markets. In the reality of life, where markets are invariably less than perfectly contestable, reaction functions, conjectural variations and the other concepts traditionally used to analyse oligopoly equilibrium all become acceptable though of course it is the degree of contestability which determines how acceptable and relevant such possibilities may be. As for the idea of an unsustainable equilibrium, this has recently been attacked on the basis that the conditions necessary for it are not typical of modern industry and that even if it does exist it is not likely to be an either/or, that is, a sustainable/unsustainable distinction but more probably a matter of degree, with the problem confined to certain specific products and being of uncertain quantitative consequence (Shepherd 1982).

Turning now to the more important debate on the concept of contestability, William Brock (1983) has expressed criticism on the grounds that the price sustainability requirement is too unrealistic. In particular, he judges the requirement that incumbents be sluggish relative to the responses of customers and entrants implausible especially given that their livelihood necessarily depends on rapid reaction. While this seems reasonable, it should be noted that price sustainability can also be realised if entrants are in a position to negotiate contracts with customers, something which is a plausible possibility.

Others using purely theoretical logic have argued that the distinction made by Baumol et al between sunk costs, fixed costs and economies of scale is not quite so clear cut as in some circumstances all three may be positively related (Weitzman 1983, Shepherd 1984). Moreoever, it has been suggested that the existence of a very minor amount of sunk costs, or more generally, a very minor deviation from the requirements of perfect contestability may bring about large departures from its optimal welfare results (Schwartz & Reynolds 1983). Baumol et al, however, have generally been able successfully to refute these criticisms and show that they are relevant only in very unrealistic and contrived circumstances (Baumol, Panzar & Willig 1983).

Perhaps the strongest criticism of contestability has been by Shepherd (1984). He argues that it ignores relations between existing firms which he presumes to be normally of much greater competitive consequence than is new entry and that the idea itself is of little practical relevance since it lacks any empirical support. Shepherd's first criticism however, is really unfounded for what ultimately shapes the dynamics of the internal competition between incumbents

within a market, and determines the propensity of existing firms to compete though new product development, advertising, promotion or distribution strategies, pricing or with any other vehicle of modern corporate warfare, is surely the ability to compete and the risks of the strategy, conditions which again are determined with reference to the significance of the three contestability conditions.

Concerning the lack of empirical support for the contestability criterion, research in this area has only recently started but already it has given new insights into domestic air (Bailey and Panzar 1981) and rail (Winston 1981) in the US and financial markets in the UK and US (Davies and Davies 1984). And under some circumstances, liner shipping could possibly come reasonably close to the ideal state, as will be shown in the following chapter. Lastly, it should be remembered that perfect contestability is just an ideal - a normative standard - and as such it does not require that anywhere its conditions should strictly and totally be fulfilled. After all, just because human beings are rarely three feet tall, it does not mean that a yardstick is an inappropriate device for measuring their height.

As a final criticism of the concept of contestability, it was noted earlier that any positive profit opportunity will always induce entry since as an entrant is technically able to compete and can do so without risk, not to enter would be illogical. Adherence to this view, however, even though it is relevant only to the limiting condition, requires a particular prior philosophical position concerning the availability of potential entrants which are automatically to fill profitable market openings, even those requiring large investment. In this regard, Baumol's position is quite clear as he states:

> Given the opportunity for profit and the absence of entry and exit costs, the world will prove full of potential entrants. They are likely to come from unexpected directions, from other industries or other countries financed by conglomerates or by other unexpected sources (Baumol 1982b).

In asserting this, Baumol is implicitly assuming that entrants - that enterprise - is not a scarce resource and therefore he is contradicting one of the most basic tenets of economic theory. This observation, however, is not intended to be nihilistic but rather to emphasise the importance in the practical application of the theory of analysing not just the extent of the actual satisfaction of the three contestability conditions but also the broader environmental

conditions that may influence the magnitude of the available pool of potential competitors.

In the light of the above criticism, what is the current standing of the contestability criterion? Although it seems clear that the concept is not so revolutionary and path breaking as the authors originally claimed and will not necessarily 'transform the field' (Baumol, Panzar & Willig 1982, Preface) it is nonetheless a major contribution. All the criticisms listed are either conditional or conjectural and when one matches this with the fact that most of the critics nonetheless simultaneously praise its intellectual contribution and when one also notes the assimilation of the concept into the general vocabulary of the discipline, it is evident that contestability is here to stay. It does not, however, render the traditional theoretical arsenal of the industrial organisation economist obsolete, it merely supplements it with a new device specialising in the possible sources and performance implications of the ability to compete and the risks of competition, and, as will be shown later, its policy advice tends to accord favourably with current sentiments on the desirability of deregulation and the efficiency of laissez-faire.

CHAPTER 5 THE APPLICATION OF CONTESTABLE MARKET THEORY TO THE LINER SHIPPING INDUSTRY

If the theory of contestable markets is to make any lasting contribution to the economic analysis of liner shipping it should be able to shed some new light on the principal economic problems identified in Chapter 3. In particular it should be able to address the competitive environment of the industry in such a way as to allow a meaningful assessment of the likely performance it generates, it should be able to explain the relationship between costs, prices and profit levels and finally it should be able to say something about whether or not shipping conferences and their practices have a legitimate role to play in the servicing of overseas liner trade. Moreover, unless the exercise be purely academic in the widest sense, the application of the theory should also be suggestive of policy implications capable of addressing the specific problem areas in Australian liner shipping - at least to the extent that they possess an identifiable (economic) efficiency component capable of remedy through the market mechanism. Treatment of this last policy issue will be reserved for the following chapter in order that attention here may be focused purely on the positive aspects of the theory's application.

LINER SHIPPING AND THE CONTESTABILITY CONDITIONS

For a market to be perfectly contestable, for it to afford the possibility of competition without risk, three conditions must be realised. As seen previously, entrant and incumbent (or more generally, all firms) must be symmetrically placed, sunk costs must be absent and the price sustainability condition must be satisfied. Additionally, although not specified by Baumol et al, it is also necessary that the wider market environment includes a pool of potential entrants large enough to allow actual entry in the event of the appearance of any positive profit opportunity. Each of these conditions will now be related to the circumstances of liner shipping.

THE SYMMETRICAL POSITIONING OF ENTRANT AND INCUMBENT

This condition requires that all firms, whether existing or prospective, have equal access to the technology of production, are subject to the same regulations or non-market constraints and are perceived by the market to produce outputs of similar quality or in other ways to have equal access to customers.

Equal access to technology

This condition appears to be satisfied in the liner shipping industry as the market for new or used vessels is a world market to which all firms can equally make purchases. Moreover, given the current overcapacity in the world ship building industry and the consequential competition between yards this has engendered, the idea that any particular prospective buyer could be denied access or be otherwise unfavourably treated is difficult to entertain. In addition, as discussed in Chapter 3, competition between different technologies and between different vintages of technology is possible in liner shipping and this, of course, renders access to the means to compete easier still as it rules out the already unlikely possibility of any group or interest cornering the market on appropriate technology.

Regulations and non-market constraints

With respect to regulations and non-market constraints, the picture is complex as a variety of different influences may actually or potentially circumscribe the operations of carriers. The most important of these constraints relate to maritime promotion policies, nationally specific service obligations, the existence of national, state-owned lines, and finally trade union favouritism.

Maritime promotion policies

Maritime promotion policies come in four distinct varieties: construction or investment financing subsidies, fiscal preferences, direct operating subsidies and cargo reservation. The potential effects of each on contestability vary considerably. Construction subsidies, are really an implicit form of shipping subsidy since it is the shipyard which is usually the targeted beneficiary (OECD 1983, 4). While such undoubtedly will influence the allocation of resources in both the ship building and ship operating industries, in itself it is unlikely to impede the contestability of the latter since it benefits equally all shipowners.

Fiscal assistance comprises a body of implicit subsidies which works through the tax system to improve the post tax profitability of any

shipping investment. Thus, depreciation allowances, investment grants or allowances and similar measures can be used to write off wholly or in part the tax liability on profits or to defer it to the future thereby reducing its discounted present value (Gardner and Richardson 1973). Measures such as these are the most commonly employed form of maritime promotion policy, being used by most OECD countries and many non-traditional maritime nations (Maritime Administration 1983). Australia, however, has been a traditional exception to this rule. In consequence, it has had the dubious distinction of possessing possibly the worst fiscal environment of all industrial countries for shipping investments (see Gardner, Goss and Marlow 1984). The introduction of new provisions for depreciation following the Crawford Report of 1981 has, however, remedied the situation and the Australian environment is not now dissimilar to the norm elsewhere.

Of the various maritime promotion policies employed by OECD countries, direct operating subsidies are by far the biggest potential impediment to contestability. Under both construction subsidies and fiscal incentives the maximum subsidy available is physically limited by the nature of the assistance, the complete purchase of a vessel (which rarely if ever happens) or zero taxes on profits being the upper limit. And neither condition is sufficient in itself to ensure corporate survival. Open ended operating subsidies, in contrast, can guarantee survival since as any commercial losses are made good from the public treasury, the recipient is rendered immune to competitive forces and is thereby dissimilarly and favourable positioned relative to commercial rivals. In practice, however, the consequences of operating subsidies are much less dramatic as the US and Spain are the only western industrial countries to extend them on international routes (Maritime Administration 1983). Their magnitude, moreover, is relatively small. And in the case of the US, which in dollar terms is easily the largest subsidiser (see for example, *American Shipper*, January 1978), the subsidy is explicitly an 'operating differential' subsidy, calculated to be sufficient simply to bridge the gap between American and foreign operating costs. Finally, because the conditions needed to qualify for it are so onerous, many US flag lines do not even bother to apply (Jantscher 1975).

With respect to their total impact on contestability, both fiscal preferences and operating subsidies appear to constitute prima facie violations of the symmetrical treatment condition since they are extended by individual nations not to all shipping but simply to those vessels registered under the national flag. In a global context, however, the practical significance of such violation is not likely to be great since, as noted previously, all the principal maritime

nations extend some such assistance to their shipping and in large measure they offset each other leaving all firms thereby equally positioned (Bohme 1978). Indeed, as the OECD puts it:

> Subsidies and fiscal benefits are granted to balance certain real or assumed cost disadvantages and thereby improve the competitiveness of a national fleet in order to achieve a balance of equality of chances with other nations' fleets (OECD 1983, 74).

The necessity of intervening in the market in order to maintain between different flag lines equal opportunities to compete stems principally from the juxtaposition of a political perception that possessing a national flag fleet is in the national interest, and an institutional setting under which private shipowners, to minimise costs, are able to register their fleets under flags of convenience. To the extent that the nature and amount of OECD assistance secures the objective of providing equality of competitive opportunities, it will not materially jeopardise the contestability of the liner shipping industry, although it will of course distort the international division of labour produced by the market.

Turning now to cargo reservation this, whether unilaterally, bilaterally or multilaterally administered, is a much more serious impediment as it directly prevents or limits non-national competition and therefore necessarily will violate the 'symmetrical positioning of all firms' requirement of contestability. Between OECD countries, where flows the vast majority of the world's liner cargoes, cargo reservation is not a significant problem, being contrary to the OECD Code of Liberalisation. It could, however, become an incipient problem for Australia given its increasing trade with South East Asian countries most of whom are supporters of the UNCTAD Code and additionally perceive the practice to be a legitimate form of maritime promotion. Moreover, if the cargo sharing provisions of the UNCTAD Code are applied generally to liner shipping rather than simply to conference shipping, it is also possible that it may influence indirectly the contestability of trades between non-signatories or between countries applying the Brussel's Package. This could arise from the effects institutionalised cargo reservation may have in segmenting the world liner market and limiting vessel movements and service flexibility which together may constrain the size of the pool of potential competitors from which any open trade can draw. Such possiblities, however, are merely conjecture at the moment and serve simply to re-emphasise the fact that cargo reservation is one of the greatest threats to contestability and commercial competition alike.

Nationally specific service obligations

Nationally specific obligations may potentially constrain contestability by putting national flag lines at a disadvantage relative to other shipping lines. Examples would include regulations that require national flag lines to purchase vessels in national shipyards, or, more importantly, which require that only national seamen can be employed. Such crewing regulations are important because wage costs are the only element in operating costs which vary significantly internationally (UNCTAD 1979). At present several OECD countries, such as the US, Portugal, Turkey and Italy (OECD 1983, 69) possess such legislation while in others such as Australia and the UK, union pressure accomplishes virtually the same thing. For Australian flag shipping, that is, the ANL, this obligation is particularly onerous as the combination of pay rates, manning scales and union imposed restrictive practices are claimed to render Australian crew costs amongst the highest in the world (House of Representatives Hansard, May 16 1985, 2619-2620). To a certain extent the shipowner in most high labour cost OECD countries can minimise the labour cost disadvantage through either flagging out or else by investing in labour saving technology. In the case of the ANL, however, the former is not an option while union pressure appears so far to have rendered the latter difficult to accomplish.

The practice of conferences and some independent lines of offering pan-Australian rates may also be perceived as a condition which discriminates against them relative to most non-conference operators who are not so constrained. This, however, would constitute a potential violation of the symmetrical positioning condition only to the extent that the practice was imposed by shipper bodies singularly on a subset of carriers rather than being a voluntarily adopted service feature. In some cases the practice is an imposition, such as with the Australian Meat and Livestock Corporation, though it is not a discriminatory imposition in that all designated carriers are subject to it. Elsewhere, the practice is primarily a quid pro quo negotiated with shippers in return for cargo centralisation and therefore again it is not really in the nature of the discriminatory obligation required for a violation of the symmetrical positioning condition.

National lines

The presence of national, statebacked lines will constitute a case of differential treatment since state lines will not normally be subject to the same commercial pressure as privately owned carriers. Indicative of this is the fact that in June 1984 ANL was technically bankrupt, having an accumulated loss exceeding its capital although it has nevertheless been able to continue in operation thanks to capital

injections which over the period from 1983-85 amounted to $160 million (see Chapter 2). Also noteworthy are the facts that ANL is the largest single company serving Australia's liner trades and that on many routes the principal non-conference competition comes from foreign statebacked lines. It appears, then, that the significant presence of statebacked shipping is a major potential impediment to market contestability. In practice, the degree of such violation will be a function of the relative presence of state vis a vis commercial (including conference) shipping on the individual routes concerned and the extent to which the former abide by normal commercial methods of operation.

Trade union favouritism

Trade union favouritism appears to be a category of violation unique to Australia. It arises essentially from the explicit objective of the Australian trade union movement of encouraging national flag participation and becomes extended to an implicit support for the conference system by virtue of ANL being on all its routes a conference member. In the case of the ANSCON Accords of 1983, this support resulted in a boycott by shore-side labour of non-conference vessels because they were judged to have damaged the viability of ANL's service on that route. Undoubtedly, the unions are in a strong position to influence shipping operations and it is not confined to cargo handling as it has been reported recently that attempts have been made by the Seamen's Union to coerce foreign owned ships into using Australian crews operating at Australian manning levels and that the Federated Ship Painters' and Dockers' Union have reportedly forced unnecessary repairs on ships, to the extent of precipitating diplomatic protests (House of Representatives Hansard, 16 May 1985, 2616). How much of an impediment to contestability these actions pose will be influenced by the degree to which they are exercised in a partial manner and in their perceived frequency and consequence. Perceptions are important here because union imposed delays and costs influence the risks of entry and the perceived likelihood of their occurrence in turn is bound to influence judgements about entry, exit or service changes. While the actual occurrence of union misdemeanours may be relatively infrequent, perceptions of their likelihood and consequence, as reflected in their prominence in the press and in statements made to the author, indicate that the problem is believed to be much greater.

Equal access to customers

Contestability requires that all firms, whether long established or newly entered, have equal access to customers so as to allow buyers

the freedom to choose the least cost supplier capable of meeting their needs. This, of course, presupposes an ability on the part of buyers to shift from one source of supply to another in response to competitive initiatives by producers. This ability to shift need not be instantaneous, at least not for all buyers, since the requirements of price sustainability may indeed mitigate against it (see below). Rather, what is important is that ultimately it is inevitable so that the efficient supplier will be rewarded through appropriately increased custom and profit. For this situation to hold, suppliers must be perceived by the market to produce outputs of similar quality as opposed to being prejudice by any ill informed or irrational customer support for specific (incumbent) firms and there must also be in place no physical impediment to prevent the inevitable, rational and informed selection by customers of the efficient supplier.

The market perception condition manifestly was developed on the assumption that all firms produce a homogeneous output. In liner shipping, however, it is evident that outputs are not homogeneous as very major differences exist in the quality of services provided by different participants, especially in terms of frequencies and long-run dependability. Consequently, as John Zerby notes, in order to reduce all to a common denominator against which the market can rationally pass judgement, it is necessary to recast the theoretical argument in terms of a situation in which 'no advantages *which remain uncompensated by the market* are perceived' (Zerby 1984, 98 emphasis original). In this respect, it is difficult to imagine how any shipper or group of shippers could maintain an irrational or uninformed preference for specific carriers given that they are businessmen out to make profits. Moreover with the ASC, individual producer bodies and freight forwarders, administrative machinery is in place which is expressly designed to assist in the making of rational and informed choices.

Turning now to the issue of contraints which may prevent the rational choices of shippers, policies such as cargo preference legislation - whose general consequence has been discussed previously - fall within this category. Debatable, loyalty contracts too may be of this nature. Debatably is used because on the one hand their presence means that entrants may not immediately be able to win contracted shippers unless they are prepared to offer a rate sufficient to recompense shippers for any penalties incurred in consequence of a breach of their contract. To that extent, entrant and incumbent would not be competing on symmetrical terms (Trace 1984, 8). Against this, however, it should be noted that as a result of the general world-wide growth of non-conference shipping, the use of loyalty contracts by

conferences has been in decline (Cotton 1984) primarily because in such a setting they are difficult to enforce. Indeed, none of the individuals interviewed in connection with this study could cite a single instance where one had been enforced in the Australian trades within the last decade. Additionally, none of the non-conference lines interviewed regarded them as significant obstacles. It also should be noted that even if loyalty contracts are successful in temporarily removing from competition certain categories of cargo, this in itself is not necessarily a constraint on market contestability as such contracts are typically of short duration - one year being the norm - and some can be avoided with appropriate notice. With sufficient notice and at the time of renegotiation, competition, then, becomes a possiblity. Moreover, by potentially or actually locking up a portion of the market, loyalty contracts are little different from time/volume contracts of affreightment which may contribute positively to contestability by facilitating its price sustainability requirement, as will be shown below.

There is, however, an important difference between loyalty and service contracts in that the former cover all shippers' cargo rather than, say, a specified minimum tonnage. As such they do limit shippers' choices more than the latter to the extent that they are enforceable. This clearly has implications for policy but as will be shown in the following chapter, such implications should also embrace consideration of the feasibility of alternative contractual arrangements and the requirements of long term service provision.

Some conclusions on the symmetrical positioning condition

The principal factors influencing the achievement of this condition have been identified as access to technology, access to customers and a diverse category of non-market constraints including subsidies, cargo reservation, nationally specific obligations, national lines and trade union favouritism. Concerning both technology and customers, the symmetrical treatment requirement appears reasonably to be satisfied, the nature of the market currently allowing no significant or lasting departure from either. The non-market constraints, in contrast, are of much more uncertain consequence. Admittedly, competition between private OECD flag vessels is likely to be symmetrical as the assistance they extend is largely self-cancelling. The potential effects of cargo reservation and national lines is greater, although their consequences are likely to vary from trade to trade. It is also easy to overstate their impact by ignoring the fact that Australia's trade in the main is still carried by private carriers. Nevertheless, the presence of both conditions, with

national lines being currently the over-riding concern, does constitute an unequivocal impediment to contestability. As for trade union pressure, its quantitative consequence too is uncertain though union activities of late have by no means enhanced contestability: indeed, by arguably adding to the perceived risks of entry they have in all likelihood inhibited it.

THE ABSENCE OF SUNK COSTS CONDITION

As noted in Chapter 4, it is the existence of sunk costs which is the principal determinant of the risks of any investment. It was also shown that there is no necessary correlation between fixed costs or scale economies and sunk costs. Rather what minimises the magnitude of the latter is the extent to which the requisite investment is reusable, movable, saleable, rentable or can otherwise be wound up without cost, conditions which together make entry 'costlessly reversible'. In liner shipping it is possible to isolate three principle factors which influence the degree to which these conditions can be realised, namely the nature of capital requirements, the role of terminal facilities and finally goodwill.

Capital requirements in liner shipping

In terms of the seaward side of its operations, there appears to be general consensus that sunk costs in liner shipping are not high (see for example Trace 1984, Zerby 1984, Davies 1984). Ships are amongst the most mobile of all capital equipment and therefore vessel costs are not specific to or sunk into any particular trade. Mobility, then, facilitates reuse. The possibilities for reuse have also contributed to a well developed second-hand market and this further adds to the ease with which an investment in any particular trade or within the industry as a whole may be wound up.

The consequential ease of exit afforded by the nature of shipping investments becomes still greater when one considers the business environment within which liner companies operate. In the first place whereas in the days of break-bulk services the physical characteristics of vessels in terms, for example, of speed, reefer space or the ratio of bale to deadweight capacity were often tailored to the needs of specific routes thus inhibiting movement, resale or leasing, the near global standardisation of equipment that accompanied the container revolution has rendered these constraints irrelevant. Equipment currently on the market can be used virtually anywhere (Conlon and Zerby 1983). Secondly, entry into the industry does not necessarily demand the prior purchase of equipment and this, in turn,

makes exit still easier. Vessels, containers and other equipment may be chartered or leased and indeed some companies acquire almost all their assets through the rental market. As a case in point, the Australian company K/Asia Pacific charters all its vessels.

It is also an increasing practise for some companies to subcontract the physical production of liner services through entering the market as a Non-Vessel Operating Carrier (NVOC) chartering space on the vessels of regular liner companies. For such companies the costs of exit may be reduced still further.

In contrast to the above picture, it should be noted that if a specific trade is of such nature as to require servicing by tailor-made specialised ships, ease of exit may be hindered. In this respect, while the size and general TEU capacity of most vessels serving Australia's trade is by no means unique, the reefer capacity provided is often substantially greater than would be appropriate for most trades elsewhere. This has two implications. Firstly, to enter the principal reefer trades a conversion cost to install appropriate capacity will need be incurred and this conversion cost, or part of it, may thus be sunk. Secondly, commensurate with reefer capacity is the need for an appropriate suite of reefer containers which, while in itself not constituting a sunk cost, containers being moveable, saleable and rentable, may nevertheless impose specific service obligations on the carrier in the form of container repositioning. This would not be a problem if reefer containers were as flexible as the non-reefer in the carriage of other goods, though as they can be used only to ship soft goods and in any case face considerable shipper prejudice, the majority have to return empty. This of course limits the flexibility of operations and therefore in conjunction with capacity installation costs may add to the risks of entering certain Australian trades, thereby inhibiting contestability.

Terminal facilities and vertical integration

In contrast to the consensus on the extent of sunk costs on the seaward side of liner operations, there is considerable disagreement amongst economists as to the consequence of shore-based activities. In particular while it is generally acknowledged that sunk costs are high, Trace (1984) and Zerby (1984) disagree considerably over whether under Australian conditions this in itself constitutes a necessary source of monopoly power. The argument, moreover, has also included debate over the general consequences on contestability of vertical integration and the legitimacy of separating for individual treatment the sea leg of a total transport package (Zerby 1985). Consequently

it will be necessary to analyse the competitive implications of both terminal facilities and vertical integration into them and beyond, the latter becoming increasingly important with the global trend towards multi-modal service provision.

Wharf facilities may create an impediment to contestability for two reasons. First, in the provision of terminal facilities sunk costs are very significant as the equipment is mostly geographically fixed and has no alternative uses. Second, if the facilities themselves are owned by a certain shipping line, or group of lines, it may be possible for them to deny access to other users or offer access at differential conditions. If so the symmetrical treatment condition would be violated.

The sunk cost issue is a problem only if lines have permanent or exclusive access to shore-based facilities. If the costs are borne by the government or port authority or if it is mandated that they are shared in a non-discriminatory manner, they will not constitute a source of monopoly power (Bailey 1981). In Australia, many of the principal terminal facilities are owned by conference lines and are sited on land leased from port authorities, the typical lease being of 16-25 years (Trace 1984, 19). If this was all there was to the story, then unequivocally contestability in liner shipping would substantially be impaired since access to terminal facilities is essential for the operation of any shipping service. But against this it should be noted that conference lines do not have exclusive access to terminals as common user facilities exist in both Sydney and Melbourne. Moreover, while the port authorities in Australia have not yet framed any explicit set of by-laws to guarantee equal access to facilities, they are nevertheless in a position to prevent any overt abuse of the terminal operators' position by being able at any time to terminate the operator's lease, if any conditions specified in the leasing agreements are not fulfilled.

Additionally, it should be noted that substantial excess capacity currently exists in terminal facilities in Australia with the result that far from seeking to deny access to new users, the terminal operating companies are actively canvassing for business. Indeed, it has been reported that to encourage additional use by non-conference lines, some terminal operating companies owned by conference lines have offered rates below those charged to their own ships: such is currently the case with Zim and the ANL terminal in Botany Bay. More generally, none of the non-conference lines interviewed by the author had any difficulty in obtaining access to terminal facilities. Thus the discrimination argument appears also not to be a significant

problem under current trading conditions which have created a buyers' market.

It should further be noted that in a buyers' market where many of the terminal facilities in place have been built by conference lines, the non-conference operators are in a relatively favourable position as they are able to make use of the facilities without incurring the (sunk) costs and risks consequent on their initial provision. At the same time, however, it may also imply that they do not necessarily have the same degree of commitment to Australian trades as those lines which have invested in expensive terminal facilities.

Although terminal facilities appear at present not to contribute a significant impediment to contestability, this conclusion should be interpreted with caution. Its validity is contingent upon current trading curcumstances which may not persist forever. Consequently, if circumstances change it may be appropriate to implement a policy to ensure the maintenance of contestability, as will be discussed in the following chapter.

Turning now to the more general issue of vertical integration, this as noted previously, is becoming of increasing importance with the development of door-to-door services. At present, it is comparatively unexplored territory in economics though such work as has been done suggests that it is not clear that as a general principle vertical integration involving a company operating in a contestable market moving into one which is distinctly less than contestable, or vice versa will of necessity bring about an increase in market power in the downstream market (Tye 1984 and Baumol 1984). Moreover, while it is in many trades becoming increasingly irrelevant to separate individual activities in door-to-door services, the process if anything increases rather than retards transport options for shippers through encouraging the development of freight forwarders, NVOCs or other brokers who are able to exert a considerable competitive influence on conference carriers (Gratwick and Kirby 1984).

Goodwill as a sunk cost

A cost which may be irrecoverable on exit is that associated with the nurturing of goodwill. Customer loyalty, business connections and cargo soliciting networks by their very nature cannot be transplanted on withdrawal. These facets of the business, moreover, seem to have assumed increasing importance of late along with the tendency of shippers to become more 'service conscious' (Pearson 1980; Brooks 1984). Under some conditions, however, the loss of goodwill may not

be inescapable. If, for example, the entire exiting firm were to be sold off or taken over by a new interest wishing to enter the trade, the cost of goodwill may be recovered on exit. Similarly if the departing carrier had made extensive use of NVOCs, freight forwarders or other specialist cargo soliciting agencies, the cost of goodwill may be rather small if present at all. Thus as to the general exit inhibiting significance of goodwill it is difficult to make any firm a priori assessment; it likely depends on the specific circumstances of the carrier concerned.

In the context of Australia's outward trades, the marketing costs of a new carrier may be relatively small because in contrast to a situation where shippers are numerous, diverse and unorganised and where advertising costs would likely be high, the producer boards and shipper's council here render the market much more easy and therefore less costly to approach. Developing goodwill, therefore, may require less of a commitment in Australia than in many less organised trades.

Some conclusions on sunk costs

From the foregoing, it appears reasonable to conclude that sunk costs generally are not a major obstacle to contestability in Australia's liner trades. The capital and general institutional conditions appear to render them low indeed. Terminal facilities are an important exception though these were shown not to be a source of monopoly power under present conditions. Likewise, some vessels may have a higher degree of specialisation in certain Australian trades than is the norm elsewhere and, while this may add to sunk costs, it is difficult to conceive that the sunk costs of reconversion are sufficiently prohibitive in themselves to render the market intrinsically non-contestable. Although the consequence of goodwill is more uncertain, the existence of means to minimise it coupled with the organisation of Australia's trades suggests that it is unlikely to be a significant obstacle to contestability.

THE PRICE SUSTAINABILITY CONDITION

Price sustainability requires that existing firms are able to change their prices only relatively slowly compared with the response of customers or else that entrants are in a position to negotiate contracts with customers prior to entry. Concerning the former, conferences are not noted for the speed or flexibility of their rate setting procedures primarily because the need for consensus amongst member lines mitigates against this. In Australian trades, price

adjustment may be further delayed because of the need for 'head office' approval from overseas.

The negotiation of contracts is normal commercial practice in the liner industry. Such contracts may be either official explicit arrangements, as are championed by the ABC Line and by certain shippers such as the Australian Meat and Livestock Corporation, or they may be looser and less formal in nature. It should be remembered that in liner shipping the only way an entrant can obtain cargo is by negotiation with a shipper or shipper's representative. This normally results in either an implicit time/volume contract by which the shipper agrees to give his cargo subject to a price and service commitment by the carrier or else a firmer legally binding agreement (Davies 1985).

The loyalty contracts offered by conferences are similar in nature to the above except that they are designed to give security to the incumbents rather than entrants. As such they may be interpreted partly as an attempt to secure sustainable prices given the problems described in Chapter 3 of pricing over the trade cycle. This situation, however, illustrates that contractual arrangements may be a double-edged sword. The possibility of their negotiation may facilitate contestability through minimising the risks of entrants. But the existence of concluded contracts, whether by conference or non-conference lines, creates a new entry barrier through effectively locking up a part of the market from further competition (Baumol, Panzar & Willig 1982, 291). This clearly has policy implications in respect of the socially optimum length of contract required to balance the two opposing forces. As such it will be readdressed in the following chapter. For the moment, however, it should be noted that most loyalty contracts are of reasonably short duration, a year being the norm and in a buyer's market, the possibility that shippers would willingly commit themselves to excessively long contracts also seems remote. This, coupled with slow price responses on the part of conferences, suggests that the price sustainability condition may be reasonably satisfied.

THE MAGNITUDE OF THE POOL OF POTENTIAL ENTRANTS

If every profitable market opening is to induce actual entry - as is implied by the concept of a perfectly contestable market - an appropriately sized pool of potential entrants is required, as demonstrated previously. In this respect, liner shipping appears uniquely favoured. The mobility of vessels means that any particular trade may be able to attract entrants from a multitude of other routes

having in place physically appropriate tonnage. And when there also exists a situation of global oversupply, with firms consequently on the lookout for any potentially profitable opening in which to apply their vessels, it appears likely that the pool of potential entrants from which any specific Australian trade can draw is very large.

Admittedly, geographic isolation and the limited size of the Australian market may make Australian trades relatively less attractive than the heavy trades of the northern hemisphere. However, it is doubtful whether this could confer under present circumstances anything of a local monopoly, especially given the high degree of market intelligence afforded by shipping institutions and the trade press. Additionally, it could be argued that some carriers may be particularly attracted to Australian trades as their very length enables the possibility of an extended period of employment.

It seems, then, that the pool of potential competitors in liner shipping is everything that is required for a high degree of market contestability.

TESTING FOR CONTESTABILITY: THE EMPIRICAL EVIDENCE

Although any assessment of a market's contestability requires an analysis of the degree to which the necessary conditions can be realised, such as was presented above (Baumol, Panzar & Willig 1982, 469), this in itself is really insufficient because some of the analysis embodied more subjective judgement than was perhaps desirable. This was particularly the case with regards to the 'symmetrical positioning' condition. To assess contestability, then, it is also important to check for the existence of any physical conditions likely to be encountered in the presence of a highly contestable market. In this respect the rate and impact of entry and exit, profit levels and price trends may all be indicative.

Concerning entry and exit, Baumol et al claim that this, when historically frequent, is the most obvious indicator of contestability (Baumol, Panzar & Willig 1982, 466). Elsewhere, however, Baumol asserts that an absence of entry does not itself imply that a market is not highly contestable for it may be the result of competitive, entry forestalling pricing (Baumol 1982a, 14). It appears, then, that a history of frequent entry and exit is a sufficient but not a necessary demonstration of contestability. In this respect, earlier work by the author (Davies 1984) shows that Canadian trades have recently experienced a very high turnover of lines. Trace (1984, 16-17), however, notes that such a head count of lines may be a

misleading indicator of contestablity because it ignores the quantitative impact of entry. In addition, at a disaggregated level some trades had not experienced such a history implying, he reasoned, that contestability may vary between trades.

With respect to the first criticism, more recent work by the author (Davies 1985) has shown that on many Canadian trades the quantitative impact of entry has been very subtantial, with very large scale entry being present in addition to the hit and run type entry often thought characteristic of contestable market. Concerning the latter criticism, as noted above and as recently emphasised by Zerby (1985), an absence of entry in itself cannot be used to support a conclusion that a market is non-contestable.

Turning now to the Australian experience, Trace (1984) has produced tables - tables which he acknowledges to be just first approximations - showing entry and exit with respect to conferences and outsiders. He noted that the rate of entry and exit and the extent of non-conference competition varied considerably between trade areas. Industry spokesmen, however, have criticised the accuracy of these tables and have produced some additional information showing much greater corporate turnover. The trades with the most comprehensive information have their history of entry and exit detailed in Tables 5.1 and 5.2. As can be seen, in the case of the ANSCON route, the period 1970 to 1984 witnessed some 19 entries and nine exits, while for the same period the West Coast of North America route experienced 16 entries and 14 exists. Because of the longer period of observation on the latter route one can also clearly see that the amount of entry and exit has increased dramatically since 1970 and this conclusion seems to support statements from both shipowners and shippers that competitive pressures in Australian trades have generally increased markedly during this period. Putting the above information together, it seems that as with the Canadian experience, the principal Australian trades have recently attracted considerable new entry while the rate on some trades, the smaller especially, has often been considerably less. Unfortunately, it is not possible to add to this anything directly relating to the quantitative impact of new entry as the data used in the Canadian case are not available for Australian trades.

However, by looking at profitability and freight rate trends, one can infer something of the recent impact of new entry competition.

Concerning profitability, figures to be meaningful should ideally be available on a trade by trade basis. This, however, is not generally

the case with the result that published profitability figures for liner companies normally aggregate earnings from different trades and also sometimes from bulk and non-shipping sources. This notwithstanding, the picture which over the years has emerged from the general financial performance of specialist liner companies is that profitability in the industry is low, and normally consistently lower than for manufacturing industry (Committee of Inquiry into Shipping 1970, Sletmo & Williams 1981, Heaver 1982). This, of course, is what one would expect in a highly contestable market. With respect to the profitability of Australian operations, because of the aggregation problem figures are available only for ANL which, as noted previously, would be bankrupt without government assistance. Indirectly, however, it may be possible to infer that profits are currently low in Australian trades as for several years the principal conference lines have been putting off decisions to renew their fleets. Such behaviour is hardly indicative of current or anticipated successful profit performance.

TABLE 5.1 ENTRY AND EXIT OF LINER SERVICES ON THE AUSTRALIAN NORTHBOUND CONFERENCE ROUTE, 1970 TO 1984

Entrants	*Departures*
Orient Overseas Container Line	Flinders Shipping Co Ltd
Yangming Marine Transport Corporation	Australia West Pacific Line
Cho Yang Shipping	Bulkfridge
Dong Young Shipping	Sin Wah Container Line
Ilwoo Marine Company Pty Ltd	Salen
Far East Shipping Company	Enterprise Container Line
Zim Israeli Navigation Company	Eagle Container Line
Hong Kong Islands Line	Eternal Line
Simsmetal	Tasman Overseas Line
Bulkfridge	
Jebsen	
Gearbulk	
E.A.C. Line	
China Ocean Steamship Company	
Sin Wah Container Line	
Enterprise Container Line	
Eagle Container Line	
Eternal Line	
Tasman Overseas Line	

TABLE 5.2 ENTRY AND EXIT ON SHIPPING SERVICE BETWEEN WEST COAST NORTH AMERICA AND AUSTRALIA

Operator	*Commenced*	*Terminated*	*Type of service*
Union S.S. Co.	1885	1960	Round trip passenger/ cargo
	1910	1967	Round trip passenger/ cargo
PAD Line	1921	--	Round trip cargo. Thence round trip ro/ro (1971)
Oceanic (Matson)	1926	1970	Round trip passenger/cargo Round trip cargo
Canadian Australian Line	1931	1953	Round trip passenger/ cargo
Pacific Shipowners (W.R. Carpenter)	1947	1961	Round trip passenger/ cargo
P & O	1960	?	Passenger, some reefer cargo
Columbus	1961	--	Round trip reefer/ general. Thence round trip container (1973)
Japan Line	1968	1970	Southbound only
Pacific Far East Line	1970	1975	Round trip cargo. Thence round trip lash
Karlander	1970	--	Various type vessels initially southbound only, thence part round trip, now southbound only
Orient Overseas	1970	1972	Southbound general
Reefer Express Lines	1971	1972	Reefer northbound
Mardina Line	1973	1974	Reefer northbound
Atlantrafik	1973	1974	Reefer northbound
Blue Star	1974	1974	Reefer northbound
Farrell Lines	1975	1981	Lash round trip
Canadian Transport	1976	1979	Lumber and general southbound only
ACE Line	1976	1978	Container round trip
Lloyd Brazileiro	1976	1976	Northbound

TABLE 5.2 (Cont.) ENTRY AND EXIT ON SHIPPING SERVICE BETWEEN WEST COAST NORTH AMERICA AND AUSTRALIA

Operator	*Commenced*	*Terminated*	*Type of service*
FESCO	1977	1980	5 container vessels southbound only
Forest Lines	1983	1983	Lumber and general southbound only
Hyundai	1984	--	Lumber & container southbound only
ANZCL	1984	--	Container round trip
H.K. Island Line	1984	--	Container southbound only

Note Occasional services southbound were attempted by Retla S.S. Co., Jebsen, Furness Withy and Weyhauser.

With respect to freight rates, recent data compiled by the Bureau of Transport Economics (BTE 1985) show that since the mid 1970s there have been major real reductions - sometimes one-third or more - in rates for Australia's principal export commodities on most routes. The only real exception to this picture is the trade to India, where freight rates have remained relatively static. It should be noted that this trade is essentially closed, being reserved for the state-owned Shipping Corporation of India by the government of that country.

In summary, then, the empirical information that is available shows that the rate of entry and exit has been high on the major Australian trades since the early 1970s. Profitability in the industry worldwide is generally regarded as being low and the current investment policies of liner companies serving Australia appear to reflect this. Finally, freight rates have displayed major reductions since the mid-1970s. When one couples these findings with previous conclusions about the reasonable satisfaction of the contestability conditions, it appears that overall, Australia's liner trades have to be categorised as being very contestable or competitive at present. On this both Trace and Zerby agree. It is also agreed that the degree of contestability is likely to vary between trades, with Zerby's (1985) observation that it is impeded whenever the trade requires specialised vessels or, more importantly, when governments introduce flag preference policies or other distortions being the key explanatory factor here. Where Zerby and Trace disagree, however, is over the generality of the results.

Thus while Zerby (1984) judges that with a few trade specific qualifications the industry is inherently contestable, Trace is of the opinion that it is primarily the present conditions of excess supply in both shipping and terminal facilities that bring about the current high degree of contestability observed on most Australian trades; it is thus a special case rather than a normal condition.

This disagreement on generality may, however, be resolved by noting that perfect contestability requires not simply compliance with the three contestability conditions developed by Baumol et al but also the presence of the extra condition suggested by the author of an appropriately sized pool of potential competitors. Thus while on commercially orientated trades it appears, as Zerby suggests, that the cost and institutional conditions are of such nature that Baumol et al's three conditions will normally be spontaneously approached, the performance results expected from this may nevertheless not be realised when the supply of either potentially available shipping space or terminal facilities is strained. And the evidence of freight rates, the incidence of non-conference competition and terminal practices (Zerby 1982) suggests that in Australian trades this may have been the case throughout the 1960s.

It appears, then, that the high degree of contestability currently witnessed on many of Australia's trades is a function of two circumstances, the satisfaction of the traditional three contestability conditions that may be automatic in the operation of commercial liner shipping and also the large size of the pool of potential competitors that flows from global oversupply in shipping which, in turn, is able freely to enter Australian trades in consequence of chronic overcapacity in terminal facilities.

INDUSTRIAL STRUCTURE AND THE PRICING EQUILIBRIUM

It was noted in Chapter 4 that only two types of market structure are relevant for pricing in contestable markets, namely natural monopoly and everything else. A head count reveals that on virtually all Australian trades two or more lines are present and when one matches this with the finding reported in Chapter 3 that liner shipping appears subject to constant returns to scale, it seems reasonable to conclude that the industry is not naturally monopolistic. As a qualification, however, it should be noted that the above scale economy conclusion was based on an assumption of single product production whereas contestable market analysis shows the nature of economies of scale to be more complex when output is multi-product. Particularly important in this respect is the demonstration that

strong economies of scope may be sufficient to confer overall scale economies on a product set normally subject either to constant product specific returns to scale or constant ray average costs. And remember, the existence of normally unused capacity will generate significant scope economies and liner shipping is of course subject to global overcapacity. Indeed for such reasons it has been argued by Taplin (1982) that the existence of conferences may be a reflection of a tendency towards natural monopoly, a tendency driven by economies of scope. This in turn, has resulted in the adoption by conferences of monopolistic, Ramsey optimal type pricing as a means of defending themselves against entry.

As the measurement of the multi-product cost concepts necessary to confirm the Taplin hypothesis is extremely difficult, one cannot easily judge which view is correct. Fortunately, however, it will be shown that this does not really matter for in the circumstances of liner shipping it is the common cost problem rather than any structural mandate which is the principal determinant of rate setting procedures. To illustrate let us take the more difficult case and assume that the seemingly highly contestable Australian liner trades are of the 'other than monopoly' type.

In perfectly contestable markets, non-monopoly firms have no choice other than to price each product sold at the level of its individual (long-run) marginal cost, as seen in the previous chapter. This immediately raises the problem of how to reconcile the observed, manifestly discriminatory rate structure of conferences with marginal cost pricing and the concomitant absence of intra-tariff cross subsidisation this necessarily will entail. Zerby and Conlon (1983) have recently attempted to resolve this paradox by studying the structure of liner freight rates on the basis of hedonic pricing equations that explicitly ascribe to each cargo type 'implicit marginal costs' which are estimated to be generated by their individual product characteristics and service requirements. When these 'implicit marginal costs' are compared with actual freight rates, the extent of cross subsidisation is much less than when computed by conventional means having a single marginal cost benchmark.

While no doubt different commodities with different stowage characteristics and densities and possibly different service requirements can potentially impose upon carriers differing marginal costs one must be careful not to push the logic too far. After all given that most of a liner operator's total costs are common costs, even in the long-run, any cargo specific costs must consist

principally of cargo handling costs, which in the container age, are unlikely to differ between commodities substantially.

A perhaps more plausible explanation arises out of pricing constraints imposed by the presence of common costs themselves, costs which in relative magnitude are far more significant than any cargo specific costs. Now when producers in an industry are burdened with substantial common costs a situation closely resembling increasing returns to scale is created (Damus 1981). And just as the latter condition renders marginal cost pricing financially unviable since at all output levels marginal cost is less than average cost, so too does the former since identifiable incremental costs will of necessity be less than any measure of average costs which would have to include a premium for common overheads. Setting prices equal to the cargo specific (or marginal) costs generated by each service supplied would thus force firms to incur losses.

The basic problem facing carriers, then, is to discern a set of prices that both covers cargo specific costs and appropriately distributes common overhead costs. From the carriers' point of view the appropriate policy would be one which maximised the net profit contribution of each commodity or, expressed differently, which maximised each commodity's contribution to common overhead costs. In an unconstrained profit setting this would obviously occur when each service is priced such that marginal cost (MC) = marginal revenue (MR) and assuming MC to be similar among commodities, this would imply that prices are a direct function of MR or an inverse function of elasticity of demand.[1]

From society's point of view, the appropriate pricing policy would be one which allowed the carrier to break-even but which involved the least possible sacrifice on the part of shippers, something achieved when the excess of rates over MC is in some inverse proportion to elasticities of demand so as minimally to distort the pattern of

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1. The proof of this is as follows:
   to maximise profits MRi = MCi,

   Now MRi = Pi (1-1/Ei) .. Pi (1-1/Ei) = MCi at the profit maximising output levels.

   Rearranging we get $\frac{Pi - MCi}{Pi} = \frac{1}{Ei}$

   This means that in an unconstrained profit setting the relative deviation of price from marginal cost will be inversely proportional to price elasticity of demand.

demand that would have been forthcoming if a first best, P = MC, pricing policy could have been adopted. The appropriate proportion would be whatever is necessary to allow the unsubsidised operation of carriers at the break-even level. This pricing policy is, of course, the Ramsey rule for second best Pareto optimal prices.[2]

The policy which is optimal for the carrier is evidently very similar to that which is best for society, *the only difference being that a break-even constraint is incorporated in the latter.* However, assuming the liner shipping market to be highly contestable, a similar constraint would be imposed by market forces upon carriers. Thus it appears that the pursuit of profit - the objective of the carrier - may lead to the adoption of Ramsey optimal prices - the objective of society - a notion similar to the 'weak invisible hand theorem' of Baumol et al (1982, 208-217).

It seems, then, that we have a plausible way of reconciling the seemingly non-monopoly structure of the liner industry with its apparently monopolistic type pricing policy. The presence of substantial common costs prevents marginal cost pricing as it imposes financial constraints similar to those of the traditional natural monopoly problem. Carriers respond with value of service pricing which causes freight rates to vary inversely with the strength, or elasticity, of demand. This, in conjunction with their highly contestable market environment, leads to the adoption of Ramsey optimal prices.

This combination of factors, moreover, serves to explain the relationship between the total revenues earned from value of service pricing and the total costs incurred, the problem of which was broached in Chapter 3. Value of service pricing or 'charging what the market will bear' is adopted because it is the profit maximising strategy, yet what the market will bear for a conference is itself a function of the threshold of entry. In a highly contestable market, this threshold is such as to ensure that revenues and costs must be

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2. Mathematically, the Ramsey rule for second best Pareto optimal pricing can be expressed as:

$$\frac{Pi - MCi}{Pi} = \frac{1 + \lambda}{\lambda} \frac{1}{Ei},$$

where λ approximates the social disutility consequent on allowing an extra dollar's profit to the firm. Its function is to ensure that a break-even constraint is imposed upon the firm. (See Baumol & Bradford 1970).

equal if entry is to be deterred, leaving thereby only normal profit. Additionally, this implies that prices necessarily will reflect the cost of alternative service provision or the opportunity costs of the service to the shipper.

There are, however, a few complicating factors which should be noted at this point. In particular, the fact that not all potential entrants offer similar quality services or have similar cost levels means that Ramsey prices in themselves are not necessarily sustainable (that is they may not simultaneously deter entry and cover the incumbents' cost). The activities of the cream skimmer or the state backed line may sometimes cause the Ramsey structure to decay as their competitive effects may be concentrated in particular submarkets-high rated or high volume cargo especially-rather than being more evenly spread across the cargo and service spectrum where the advantages of a conference, especially in terms of frequency offerings and port coverage are most in evidence. And by involving a potential departure from an optimal rate structure, the existence of such a decayed or compressed rate structure may be prejudicial to social welfare.[3]

ON THE ROLE OF CONFERENCES IN CONTESTABLE MARKETS

So far analysis has concentrated principally on the contestability of liner trades and on an explanation of the pricing structure adopted by conferences. No mention, however, has been made of the rationale of conference organisation. In this respect it was noted in the previous chapter that the process of natural selection imposed by the discipline of contestable markets means that no firm, no industrial structure and no co-operative arrangement amongst firms could endure unless it conferred some survival value and did something positive to promote general cost efficiency. In view of this it could be argued that the presence of conferences on most of the world's deep-sea trades and their longevity is revealed evidence of some intrinsic economic advantage in such organisation. At the same time, however, one could reason that the above would hold only if liner trades had remained continuously highly contestable, for if they had not, then current cartelisation may simply be a legacy of an earlier offensive pursuit of monopoly profits that was possible under previous trading conditions. But which view is most likely to be correct?

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3. This was also a principal conclusion of Sletmo and Williams (1981), although their insights were cast in terms of pre-contestability concepts.

Historically it is evident that conferences first evolved not in tight markets conducive to profiteering but under conditions of chronic overcapacity similar to those at present (Royal Commission on Shipping Rings 1909, Marx 1953, Deakin & Seward 1973). The initial impetus was clearly the pursuit of survival, a defensive rather than offensive response. And although successive periods of acute overcapacity have frequently strained conference organisation they often have rebounded with renewed vigour after having readjusted to the new conditions. Indeed like any organisation they may become rigid and inflexible over time and fail to adjust to changing circumstances unless forced to by radical upheaval. Now it could be argued that current pressures are qualitatively different from the old, with changing technology, combined and round the world services, multi modalism and political intervention being much more difficult to accommodate than previous challenges.

It seems unlikely, however, that the pressures will result in a complete demise of the system because it is evident that it does offer some important economic advantages. On any Australian trade, for example, no independent could match the frequency and comprehensiveness of the services offered by conferences. Admittedly, on some trades all the independents combined may technically be able to match the conference's service though the practical implementation of this possibility would require some form of co-operative non-conference conference.

In terms of costs, co-operative arrangements, ceteris paribus, should also have advantages over independent competition through allowing more effective service rationalisation and the better exploitations of indivisibilities and scope economies which a larger scale of operation permits (Agman 1976, Gilman et al 1977, Sletmo & Williams 1981, Taplin 1982, Davies 1983 and 1984 and Trace 1984).

It seems, then, that conferences originated for defensive purposes and have endured because they allow the realisation of certain service and cost advantages. At the same time, however, their collusive arrangements have offensive possibilities in times of capacity shortages. Now in addition to the obvious policy implications of this - which will be discussed further in the following chapter - another question is also raised. Since it is the large scale of operations which allows the service and rationalisation advantages of conferences, why has this not been achieved through concentration rather than collusion, especially as in tight markets it is better to have sole possession of monopoly profits rather than simply a share there-of?

It can be hypothesised that if an individual firm is of sufficient size to mount individually a conference type operation on a specific route - as many liner companies are - it nevertheless may find it more advantageous to allocate their vessels between routes rather to concentrate them on one particular trade. Although it has been argued that business risks in liner shipping will normally be low because the market is highly contestable, some risk must nevertheless be present because no market in reality can be perfectly contestable. This risk, however, may be further reduced through trade diversification. Expressed alternatively, trade diversification may allow the more effective accommodation of cyclical and secular changes in trade patterns than would periodic complete or partial corporate migrations between trades with the concomitant necessary commitment each time of some sunk costs, if only to cover trade development costs. This may permit a better long-run rate of return than would a policy of local monopolisation.

In sum, then, it seems reasonable to argue that the advantages inherent in both conference organisation and trade diversification have resulted in them being selected by market forces as surviving, enduring practices in the liner shipping industry.

CONCLUDING COMMENTS

It appears that the Australian liner trades as a whole can reasonably be classified as highly contestable. The necessary conditions identified by Baumol et al of symmetrical treatment, an absence of sunk costs and price sustainability seem to be approached closely. The behaviour of the industry in terms of entry and exit, financial performance and price trends is likewise supportive of this. No market, however, is perfectly contestable and the extent of trade diversification practised by companies indicates that there must be present some risks and sunk costs sufficient, at least, to be worth seeking deliberately to minimise. Additionally, the aggregate contestability conclusions may mask variations between trades with contestability being reduced in circumstances not so much where there has been an historical absence of entry and exit but where specialised vessels are essential or where political factors or trade union influence may violate the symmetrical treatment requirement.

It was argued that the nature and institutions of the liner shipping industry are such that on commercial trades the above contestability conditions are likely to be automatically approached. But this in itself does not guarantee the normally implied favourable economic performance because it was shown that this requires a fourth condition

- an appropriately sized pool of potential competitors. While currently in place, this condition is something that cannot be taken for granted. Similarly, while excess terminal capacity means that Australia's trades are currently open to this pool of potential competitors, this too cannot be assumed as automatic as the sunk costs inherent in terminal operations and the nature of their ownership are both potential sources of monopoly power, though sources which plainly cannot be put to use under present circumstances.

With a few qualifications, the general conclusion is that in the main, Australia's trades are very contestable and therefore carriers, whether conference or non-conference, will be forced to operate efficiently to the advantage of the country's shippers.

It was also shown that, while the revealed structure of Australian trades is not normally naturally monopolistic, the common cost problem imposes pricing contraints similar to those associated with natural monopoly. This in turn has forced conferences to adopt Ramsey prices which likewise are in the interests of shippers. Such prices, however, may not always be sustainable as non-conference competition, instead of influencing all demand elasticities similarly, may be felt on certain commodities or services only, as when cream skimming is practiced. This may bring about an undesirable compression of the rate structure.

Finally, it was noted that the existence and longevity of the conference system suggest that it must have some efficiency value. This is primarily attributable to the service frequency it is capable of supplying, the improved utilisation rates that rationalisation should allow and its ability to exploit economies of scope more effectively that could a group of competing firms.

CHAPTER 6 NORMATIVE ANALYSIS AND THE POLICY IMPLICATIONS OF CONTESTABLE MARKET THEORY

It was noted in Chapter 3 that normative analysis in liner shipping is particularly complex as the number of different groups with a legitimate interest in its operation is relatively large and these interests may involve political and diplomatic dimensions in addition to the customary economic. This qualification notwithstanding, it was noted in Chapter 2 that Australia is primarily a shipper as opposed to a shipowning nation; relative to trading its shipping activities are insignificant. In consequence of this and of the manifest importance of trade to the Australian economy, the normative analysis attempted here will be predicated upon the explicit assumption that the national interest should be identified with the consumers of liner services rather than with the producers, with organised labour or with any other group. To this end the policy implications of contestable market analysis will be presented as they relate and contribute to the particular interests of consumers. Although it involves trespassing outside the limited area of competence of the economist, the analysis will not, however, be left here because it is quite clear that the problems of trade security and national flag participation are important and topical in themselves and do indeed impact on shipper interests. Consequently the implications of the theory for consumers will eventually be modified in order to embrace these other considerations.

ON THE INTERESTS OF THE CONSUMERS OF LINER SHIPPING SERVICES

The consumers of liner shipping services are, of course, the shippers with cargo to move, the importers and exporters. It is not, however, always the case that the party which happens to pay the freight is the effective consumer for it is possible that the freight cost may be passed on to another group. For example, an Australian exporter selling cif obviously pays the shipping company the freight rate it charges for moving his goods. However, if he could inflate his selling price by the full amount of that freight, it would be the foreign importer, not him who ultimately bears the full cost of shipment and may therefore be said to be the effective consumer of the shipping service.

Identifying the incidence of freight costs is clearly important for if it was always the foreign importer or foreign exporter, then freight costs would be irrelevant to the particular interests of Australian traders and therefore attention could be focused fully on other matters such as trade quality or security. Unfortunately, however, the reverse seems to apply for as Cassidy (1981a) has convincingly shown the relevant elasticities of demand and supply are such that on the outward trades it is the Australian exporter who is forced to pay the lion's share of freight costs while on the inward trades the Australian importer too bears the principal incidence.[1] In consequence, freight rates and their minimisation, are particularly important to Australian shippers.

At this point it is important to note that the interests of all shippers need not be identical. For some shippers freight rates may be crucial, for others, especially those shipping very high valued goods for which interest costs are high, speed may be of greatest consequence, while for others frequency or dependability may be considered paramount. And given that service quality and low prices will be inversely related and given that in liner shipping all may be obliged to use similar services[2], there is considerable scope for conflict between the interests of shippers. Toward the serving of whose interests should consumer orientated policy therefore be principally targeted? The answer to this requires a further value judgement. To this end, all shippers, for analytical convenience, will be divided into two categories, the 'regular', with continuous trading obligations and for whom service quality is almost as important as price, and the 'sporadic', with intermitent trading needs and for whom price, not service, is the dominant factor. Now as it can be reasonably argued that the health of the economy is more dependent on the regular rather than the sporadic type shippers, consumer interest will primarily be identified with the regular shippers, though where this is obviously strongly at variance with the needs of the sporadic, policies appropriate for the pursuit of their needs will be identified.

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1. It should also be noted that the relatively inelastic supply and elastic demand on the outward trades and vice versa on the inward trades that secures this Australian incidence, also mean that Australia will be the principal beneficiary of the indirect benefits of trade, namely producers' and consumers' surplus.
2. This obligation stems from the fact that the carrying capacity of a modern liner service may be very large while the volume of cargo offered by the typical liner user is normally very much smaller. Any given service will therefore necessarily have to accommodate the cargo and particular service needs of many different shippers.

CONTESTABILITY THEORY AND THE 'REGULAR' SHIPPER

While the quality of service offered by some independent lines has improved considerably of late, it is nevertheless evident that service features such as frequency, dependability, range of coverage and speed are normally better supplied by conference agreements. In fact it has been expressly argued that a principal purpose of conferences is to enable the systematic provision of such service qualities (see Principal Australian Conferences 1984). As such, one can infer that their target market is the 'regular' shipper with whom we have identified the public interest. How effective, then, have the conferences been in serving the needs of these shippers?

In the previous chapter it was argued that in the main Australia's liner trades currently appear to be highly contestable. It follows therefore that the services provided by conferences must be economically efficient in terms of the allocation of resources, cost effectiveness and the structure and level of prices charged. It also follows that if they fail to supply a service which could be economically supplied, entry should take place. In this respect it appears that the cargo centralisation policies adopted by conferences after containerisation did leave unexploited niches in the market and some of the new entry that so markedly increased in the 1970s could be interpreted as a response to this.

It seems then that, in terms of service and price, the interests of the regular shippers are currently being met and should continue to be met provided that Australian trades remain contestable and that current prices are sustainable.

With respect to the need of the 'sporadic' shippers for bargain basement prices, current levels of contestability with their consequential effects on market coverage and rate structures and levels should likewise appropriately accommodate their interests.

It should be noted that the above does not imply that all of Australia's trades will be operating with optimal efficiency to the maximum benefit of each and every shipper because that would be a property only of *perfectly* contestable markets, whereas liner trades, though in the main being very contestable, are necessarily less than perfect. What the above does mean is that the level of economic performance evoked by the market place alone will be sufficient to safeguard the interests of the great majority of regular and sporadic shippers and therefore render wholesale government intervention both unnecessary and undesirable. This conclusion is basically in keeping

with the following two part test devised by Joskow and Klevorick (1979) to evaluate the desirability of government regulation:

Step 1 : Examine the market's contestability. If it satisfies the criteria of contestability, interference with the market mechanism should be ruled out.

Step 2 : Even if the contestability criteria are violated, proposals for intervention should be approved only on the basis of an evaluation of costs and benefits.

In advocating this general policy of non-intervention, there are, however, two important qualifications that may in some measure distract from it. Firstly, it was noted previously that the degree of contestability may vary between trades. If it can be established that on any particular trade the contestability conditions are demonstrably and substantially violated and that market performance is manifestly poor, specifically targeted remedial intervention may be appropriate, subject to the benefit/cost test described above and also the practical and diplomatic feasibility of the exercise. Secondly, and of greater importance, although Australia's liner trades appear in the main to be *currently* highly contestable there is no guarantee that this situation always will endure, as seen in the previous chapter. Indeed evidence of freight rate trends, the statements of shippers and even the candid admission of conferences themselves suggest quite clearly that in previous years, such as the 1970s, market conditions had allowed lines to extract considerable rents and ignore the wishes of shippers.

It seems reasonable, then, to argue that government may indeed have a legitimate and necessary role to play in maintaining contestability on those trades where the market is obviously working - which currently is most - and also in more actively enhancing contestability on those trades where it is not and where improvements are possible and practicable. Now policies to maintain and policies actively to enhance contestability are not necessarily different in kind since both will turn on consideration of similar issues; the difference is primarily one of the degree to which that consideration is prosecuted. With respect to the issues, these are the conditions which actually or potentially impede the realisation of the requirements of contestability. The nature of these impediments and the possibilities for their mitigation are discussed below.

PROMOTING THE SYMMETRICAL TREATMENT CONDITION

As discussed in Chapter 5, the principal impediments relating to this condition are subsidisation, cargo reservation and the existence of statebacked lines. So too may be terminal facilities, union favouritism and loyalty ties though these will be discussed under different categories below. With respect to the former, politically induced impediments, no country individually is in a position to remedy them. Even multilaterally, the simple solution of eliminating all maritime promotion policies is doubtlessly impractical. What may, however, be a practical objective for multilateral consideration is the avoidance of some of the more grossly disruptive of policies such as operating subsidies over and above levels necessary to enable equal opportunities to compete and, more importantly, cargo reservation. In this respect, the EEC's 'Brussel's Package' relating to the UNCTAD Code has been an important development and accession to it is something that Australia could perhaps consider if only to possibly help contain the spread of cargo reservation, while simultaneously offering a gesture of support for Third World shipping policy. Against this, however, or possibly facilitating it, it seems that the Code is becoming increasingly irrelevant in the context of recent organisational changes in the industry, in particular the development of multimodal and round-the-world services both of which can render the idea of cargo sharing nonsensical.

With respect to statebacked shipping, Australia faces something of a policy dilemma. In the case of its own fleet, while the privatisation of ANL may be judged to enhance the contestability of the trades in which it operates, trades which, remember, are already highly contestable, this may be achieved only at the cost of losing the ability to achieve other objectives like trade security and governmental influence on conferences which may contribute to the country's wider national interests. Similarly, while the potential for predatory incursions by foreign state lines may be checked by the adoption of legislation similar to the US 1978 Ocean Shipping Act, the presence of ANL may render such a move both hypocritical in appearance and difficult to enforce in practice. Specifically, the imposition of any remedial action may invite retaliatory measures against ANL irrespective of the merits of the case. At the same time, moreover, it could be argued that the mere existence of ANL renders such legislation irrelevant as its presence may facilitate reciprocal intergovernmental arrangements and diplomatic resolutions which, for an economically small country, may be as effective as legislative decree.

As a final observation, it should again be emphasised that maritime promotion policies and state fleets are political impediments to contestability and therefore require political solutions. Such solutions, moreover, could be better achieved by the intergovernmental efforts rather than by unilateral action because of the greater strength that lies in numbers and because of the international character of the industry which in itself limits the possibilities of unilateral solutions.

MINIMISING THE INCIDENCE OF SUNK COSTS

The principal sources of sunk costs identified in the liner industry in Australia relate to terminal facilities, the development of goodwill and services requiring specialised vessels. The problem with terminal facilities is that the principal operating companies are owned by the major shipping lines whose access to them in some cases may potentially be near exclusive, given that the leases of the land on which they are sited are typically long term. Admittedly, there are checks in place which may limit the extent to which the parent shipping lines may abuse their position, these being the possibility that the port authority may cancel their leases, the power that the harbour master has in being able to direct a vessel to any berth and existence of common user berths in Sydney and Melbourne. Although these checks appear adequate under current circumstances of chronic terminal excess capacity, they may not in themselves be sufficient to ensure free entry if supply were to become strained. Additional measures may also be required. In this respect, an incarnate set of by-laws governing port authority operations and which serves to ensure equal access to terminal facilities, arrangements to permit the easy transfer or sale of leases, or the actual ownership of the terminal facilities themselves by the port authorities are all policy options.

With respect to the last option, it should be noted that one of the main reasons behind the current pattern of terminal ownership was that in the early 1970s not enough common user facilities existed and therefore individual lines became obliged to control their own. Consequently, while it may be desirable to see some extension of the common user concept and the development of more independent stevedoring companies, obligatory divestment by lines of their terminal facilities appears inequitable. Continuing private ownership, moreover, is not in itself a problem provided that the other measures noted, or any similar arrangements, are simultaneously

in effect so as to safeguard universal and non discriminatory access to terminal facilities.

In addition to the ownership of sunk cost investments, terminal operations are also important in terms of both the favouritism shown by the waterside workers to ANL and its conference brethren and the inefficiency, industrial disputes and consequential costs that have flowed from their actions. Although the common root of these problems - trade union power and organisation - is primarily a political problem, it appears eminently suited to an economic solution, namely exposing union behaviour to the discipline of the market. The designation of private, non-union ports would provide a competitive alternative to unionised facilities and hence encourage waterside workers to respond to the needs of both shipper and shipowner and generally improve their efficiency. Such a move is obviously extremely difficult to implement although the state of port productivity coupled with the dependence of the economy on trade appear sufficient to warrant operational improvements.

Turning now to goodwill, the costs incurred in its development and maintenance may be irrecoverable on exit because local cargo soliciting arrangements and contracts, by their nature, cannot easily be transferred. If, however, these arrangements could be subcontracted to specialist brokers there may be no such loss on exit. In this way, new entry may be further facilitated through the establishment of an obvious and direct channel by which the entrant can negotiate for cargo. Independent freight forwarders, the Australian Shippers' Council and the principal commodity groups are all strategically positioned to perform such brokerage functions and therefore the health and vitality of these institutions may directly contribute to the contestability of the liner shipping industry.

With respect to the potential impediment to contestability issuing from the need for specialised equipment for some commodities, reefer cargoes in particular, although the problem[3] is intrinsic to the necessary technology, policy can nevertheless ameliorate it in the

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3. It should be emphasised that the 'problem' here is more hypothetical than actual, as evidenced in recent freight rate trends and the fact that there has been no shortage of lines seeking designation by the Australian Meat and Livestock Corporation (see AMLC 1985).

following ways. Firstly, a strong shippers' council or commodity group may be in a position to exert sufficient countervailing power to offset any competitive advantage the incumbents may enjoy.[4] Secondly, given the volume of reefer cargo currently moving, the exporters are in a position to openly solicit the services of carriers and in this respect they may encourage competition for their business through appropriate contractual incentives, as will be shown below.

PROMOTING THE PRICE SUSTAINABILITY CONDITION

The price sustainability requirement of contestability demands either slow price responses of incumbents relative to consumers or the possibility that entrants may negotiate service contracts with customers. Of these conditions only the latter lends itself to policy initiatives since it is not feasible to prevent or artificially delay the price responses of existing firms to changing market circumstances. Time and/or volume contracts or any similar such arrangements between shipowners and shippers would appear, then, worthy of encouragement, subject, however, to two qualifications.

Firstly, the duration of any explicit contractual arrangements should be limited lest the facilitation of contestability it may allow becomes transformed into a substantial obstacle. In this respect as entry and exit appear to be relatively easy and therefore riskless the contract required to reward entrants need be appropriately short. Current contractual practices appear spontaneously to meet this condition for as noted in Chapter 5, the normal duration of conference loyalty contracts is one year. In certain specialised trades, eg reefer trades, where contestability may be lower and the risk of entry higher, correspondingly longer contractual periods may be required if the trades are to be sufficiently attractive to entrants, though again this currently seems to be the case as the typical designation period offered by the Australian Meat and Livestock Corporation runs for three years.

It appears, then, that policy initiatives could improve little on current market practice in terms of achieving the socially appropriate lengths of contract required for price sustainability.

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4. Similarly, in trades where contestability may be reduced because of political interference, the ASC has an important role in seeking to ensure that exploitation of shipper interests does not take place, or at least bringing the attention of the government to the problem since they are better placed to seek remedial measures.

Secondly, it is possible that the primary product nature of the country's principal liner exports renders exclusive patronage contracts more appropriate than time/volume contracts for some shippers. This is because the supply of some such products is intrinsically volatile and therefore it is difficult for the shipper to give firm guarantees of minimum cargo volumes. Consequently, if a guaranteed service is provided for less than guaranteed shipments of cargo it may be reasonable for the lines to demand of these shippers exclusive patronage. As noted in the previous chapter, such arrangements may be more restrictive than time/volume contracts over the duration of the stipulated contract though at the same time they avoid for the shipper the possible liability for liquidated damages normally associated with an inability to fulfil the terms of a standard time/volume agreement. In the context of Australian trade, both types of contracts may thus have a legitimate place.

THE POLICY IMPLICATIONS OF CONFERENCE AGREEMENTS

So far consideration of policies to maintain or enhance contestability has addressed primarily the environmental, technical and commercial conditions of the liner industry as a whole and it has not explicitly touched on the consequences of the specific arrangements made by conferences. Conference agreements represent for normative purposes a similar situation to concentration achieved through corporate growth or merger. Thus instead of several small lines atomistically competing, the trade becomes dominated by one firm under concentration or by a group of firms behaving as one under a conference. There are, admittedly, some differences as competition under the latter is never completely eliminated though at the same time it is often claimed that it becomes misdirected into socially inefficient avenues such as service competition (Cassidy 1981a). The problem presented by conferences, then, is to ascertain both the performance consequences of concentration and market domination and also the extent of any inefficiencies fostered by cartel agreements and practices.

As noted previously, the Australian liner trades in the main are currently highly contestable. This means that concentration and market domination, where it occurs, is not a problem for, in the worlds of Baumol, Panzar and Willig (1982, 466):

> ...we have concluded that if any industry is structurally contestable and is behaving accordingly...then that industry is best left to its own devices with no government interferences *even if it is composed of a very small number of firms*, (emphasis original).

Similarly, as noted in Chapter 4, perfect contestability precludes x-inefficiency or inefficiency of any kind. The degree of contestability experienced on Australian trades should therefore allay any fears of cartel arrangements fostering general cost inefficiency.

Consequently, the theory suggests that there is nothing to be gained from banning conferences. Such a move may indeed be counter-productive since their agreements may be necessary to achieve the service quality variables discussed above. The rationalisation potential they allow may additionally serve to maximise load factors, the cost consequences of which were described in Chapter 3. The survival of conferences for over a century, moreover, could be interpreted as evidence that some such benefits are being realised through cooperation.

Allowing conferences to exist, however, does not mean allowing them to operate with complete licence. As noted in Chapter 5, while conference agreements originated and have endured because of their defensive qualities, they simultaneously have considerable offensive possibilities when the market is tight. Consequently a continuing surveillance of their strategic behaviour would be prudent as would monitoring of the environmental conditions which circumscribe the degree to which the contestability conditions can be realised and which therefore create the circumstances under which conferences could abuse their position.

THE POLICY IMPLICATIONS OF UNSUSTAINABLE PRICING EQUILIBRIA

It was mentioned in Chapter 4 that contestable market analysis has speculated that under some circumstances an efficient firm may not simultaneously be able to cover its costs and deter entry without recourse to strategic counter measures (eg predatory pricing) or governmental assistance. This possibility essentially arises when the entrant is in an advantaged position with respect to incumbents. In the case of liner shipping, cream skimming and political interference are the principal potential sources[5] of such advantage.

Concerning political interference, statebacked lines are clearly in a favoured position compared to singularly commercial enterprises and therefore their presence may render unsustainable any normal profit

5. Davies (1985) however, develops some seven potential sources of unsustainability, though he notes that the consequences of most are questionable.

equilibrium established by the latter. In terms of an appropriate policy response, two issues need consideration. Firstly, as noted earlier, the incidence of transport costs falls primarily on Australian traders. This simultaneously means that Australian traders will be the principal beneficiaries of any subsidy extended to national lines so from their *immediate* point of view it may be useful to welcome with open arms the state trading fleets of the world. Secondly, it could be argued that for the *long term* interests of the country as a whole, it is better that trade be serviced by commercial carriers disciplined by the market place. As such, this view suggests that private carriers may need some protection from state trading fleets if the latter's incursions and behaviour reached a point from where they significantly threatened the former's commercial viability. This, however, carries with it the attendant policy dilemma in respect of state fleets described previously. Fortunately, neither the behaviour nor extent of state shipping appears currently to be such as to substantially jeopardise the survival of commercial shipping. The problem is fortunately more hypothetical than actual. Like the conference problem, the situation appears to warrant monitoring rather than direct action.

With respect to cream skimming, it has often been argued by conference lines that the activities of certain non-conference operators, even if they be wholly commercial ventures, can nevertheless jeopardise the viability of their services. This is particularly the case if the operator concerned concentrates his service on a limited range of ports or cargoes and selectively undercuts the conference tariff. In this way the conference, being forced to cut its rates in the areas where it competes head to head with that outsider, may not be in a position to earn sufficient revenue to cover the costs of its more comprehensive service targeted at the wider market. It thus may be compelled to reduce its service quality to a level similar to that of its competitors.[6] At the same time, responding to such incursions may compress the rate structure and lead to a departure from the Ramsey optimal prices it may otherwise have adopted. Neither outcome will necessarily be in the best interests of the majority of its 'regular' shippers.

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6. These points were emphatically raised with the author by ANL spokesmen. It should be noted that although creamskimming is normally associated with an outsider undercutting a conference's higher rated cargo, Chapter 2 showed that on most Australian trades non-conference lines appeared to concentrate more on the lower rated cargo. This could still be compatible with cream skimming behaviour, however, if the cream of a trade consisted of high volume, as opposed to high rated, cargo.

It was noted in Chapter 4 that such unsustainability, if it does occur, is likely to be of uncertain quantitative consequence. As such it does not appear on the basis of available information to be a type of problem demanding a formal policy remedy. And given the privileged position of conference cartels, the competitive check posed by market niches could be judged as being of greater positive benefit than any theoretical effects of detriment to pricing structure or service quality, especially as loyalty contracts or similar arrangements may minimise the incidence of such incursions. At the same time, however, it could be argued that it is precisely this type of pressure which has put pan-Australian rates under strain. This may well be true because in a contestable market the kind of cross subsidy between ports that pan-Australian rates entail cannot be sustained. If so, the process is really one of market adjustment which in itself is not intrinsically undesirable in terms of the efficiency requirements of the economy as a whole.[7]

ANL AND THE WIDER NATIONAL INTEREST

It has been argued throughout that when a market is contestable commercial forces will be sufficient to safeguard the interests of consumers. As Australia's liner trades generally appear highly contestable and show every sign of remaining that way[8], government participation in shipping - in the form of the ANL - may appear unnecessary if not counterproductive. This is particularly so if the ANL is to operate in all circumstances on a solely commercial basis as then it would be no different to any other private carrier.

In shipping, however, consumers are not the only group with a

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7. Of course the demise of pan-Australian rates, should it occur, will be prejudicial to the interests of those shippers trading through remote outports who previously were in receipt of cross-subsidy. If it is judged that these groups should receive preferential treatment, then arguably that is a job for an explicit governmental regional policy rather than an ad hoc private cross-subsidy.
8. In Chapter 5 it was argued that the liner industry will normally automatically satisfy Baumol et al's three contestability conditions so therefore the key determinant of contestable performance will be supply: when this is strained, economic rent can be earned and conference abuses can occur without the induction of corrective entry, though, when oversupply occurs, contestable performance will be forthcoming. In this respect, despite chronic overcapacity, the world liner fleet is still expanding (OECD 1984, Table 16), world shipbuilding capacity likewise is in surplus, and with the development of round the world services it appears that there is no foreseeable general shortage of shipping space for Australia's trade.

legitimate interest to prosecute. Indeed, it is possible to identify a wider national interest that will additionally embrace the desirability of being able to observe and influence conference decision making, the long term need of ensuring security in the servicing of trade which is particularly important given the isolated and thin nature of some Australian trades, the diplomatic desirability of being able to observe and influence intergovernmental shipping arrangements and thereby counter any political impediments to contestability, and the potential military need of supplying logistical support to the armed forces. For reasons such as these, some of which clearly transcend mere economic rationality, it may be in the best interests of the country to possess a government controlled fleet. This, however, raises the additional question of what size of fleet is appropriate to secure these ends. In this respect, ANL, as noted in Chapter 2, is the largest single carrier presently serving Australian trade and as such is arguably more than large enough to serve any foreseeable political or military contingency. In view of this, the present policy of seeking to improve and consolidate the performance of its current operations, as opposed to enlarging their scope, appears reasonable, as its current size coupled with improved commercial viability means that the wider national objectives may be secured without its presence markedly jeopardising market contestability.

THE ROLE OF THE AUSTRALIAN SHIPPERS' COUNCIL

As has been noted previously, the ASC suffers from the problem of being financially weak, of representing less than one fifth of export cargoes in rate negotiations and of being dominated by the principal producer boards in matters of policy. Now when such difficulties are coupled with the finding that market forces alone appear currently sufficient to safeguard the interests of shippers, one can legitimately question whether the ASC any longer has a purposeful function to fulfil in the Australian shipping scene.

The answer, however, is unequivocally yes! Contestability, as seen in the previous chapter, may vary between trades and where it may demonstrably be diminished in consequence, say, of capital specificity or union activities, etc, strong negotiations with conference or independent lines become a priority as may the dissemination of market intelligence and the active solicitation of new lines if incumbents are generally failing to meet shippers' needs. Just as ANL may have an important function in neutralising trade specific political impediments to contestability, the ASC, then, may be invaluable in

combatting economic or essentially non-political trade specific contraints.[9]

This, however, does not mean that the ASC could not benefit from improvement as clearly the above duties could be more effectively performed with greater cohesiveness and an improved financial ability to purchase appropriate accounting and legal counsel. These difficulties aside, its ability to focus on and help remedy particular trading problems which may be too specific for broad based governmental policy to effectively address means that it is an institution worthy of encouragement.

A SYNOPSIS OF POLICY RECOMMENDATIONS AND THEIR COMPATIBILITY WITH PART X OF THE TRADE PRACTICES ACT AND THE 1984 US SHIPPING ACT

Following the conclusions reached in Chapter 5 that Australia's liner trades are in the main highly contestable, it appears that in terms of serving the interests of shippers, the workings of the market are currently more effective and more desirable than would be administration by the government. No general prohibition or regulation of conference agreements was therefore proposed as the system itself is potentially advantageous in terms of both efficiency and service quality and therefore its actual form is best left to determination by commercial imperatives rather than by decree. Instead, it was suggested that effective monitoring of conference behaviour and a policy of maintaining or enhancing the environmental conditions that influence the degree to which the contestability conditions can be realised, was appropriate. In this respect, diplomatic efforts and reciprocal governmental shipping agreements could be directed at minimising the consequence of any trade specific politically induced impediments to contestability while the ASC, freight forwarders and the producer bodies are important in their ability to counter any non-political constraints. On the port side, it was suggested that port authorities be more active in promoting common user terminals and in developing by-laws and leasing arrangements to ensure universal, non-discriminatory access to terminal facilities. Additionally, it was noted that the establishment of private non-union ports may combat both the inefficiency and favouritism fostered by the waterside workers. Finally, it was noted that contractual practices are important in securing contestability and that time/volume contracts should be

9. Freight forwarders and the producer bodies may also be important in this respect.

encouraged where appropriate to shippers' needs. Conference loyalty contracts, having a role in facilitating comprehensive long term service provision in the face of uncertain cargo shipments and in possibly minimising any undesirable effects of creamskimming competition, were likewise judged a commercially legitimate and not unduly anticompetitive practice and one which would in any case be subject to monitoring.

The measures advocated above are not out of line with either the philosophy or practice of Part X of the Trade Practices Act. The Act's basic framework exempts conference agreements from domestic restrictive practice legislation and instead requires that they be filed. It also makes formal negotiating procedures with shippers mandatory (see Chapter 2). All this accords favourably with the above position. The monitoring of conference agreements, however, may be better accomplished if they were made public and subject therefore to shipper scrutiny rather than by the current practice of having them solely accessible to the Clerk of Shipping Agreements and designated officers within the Department of Transport. Where current legislation does appear to have a weakness is in its addressing simply the 'blue-water' side of shipping procedures whilst multi-modalism and related organisational changes suggest that a wider view may be appropriate, in particular one that simultaneously addresses wharfside issues.

With respect to US legislation, it appears that with the passage of the 1984 US Shipping Act, it has moved much closer to traditional Australian practice in terms of both general orientation and specific provisions.[10] In doing so it is not substantially at variance with the policy implications of this study, at least with respect to general principles. The Act reaffirms Congressional support for the conference system by considerably broadening its antitrust immunity, permitting and encouraging the formation of shippers' associations and making consultation with conferences mandatory upon the request of the former. Finally it emphasises the need for a minimum of governmental intervention and regulatory costs and the associated desirability of market regulation of conferences.

The basic framework of the new legislation, however, is similar to that of the 1916 Act. In particular, conferences must still be open and most of the previously proscribed practices such as fighting ships

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10. The provisions of the 1984 US Shipping Act and their development are comprehensively reviewed in Friedmann and Devierno (1984).

and deferred rebates are still prohibited only now dual rate contracts have been added to the list. Moreover, all conference agreements must still be filed with and approved by the Federal Maritime Commission (FMC) though now there is a new general standard for the review of these agreements which is much more favourable to conferences. In this respect, agreements may be approved even if they substantially reduce competition to the material detriment of shippers provided there are offsetting benefits such as minimising rate instability or overcapacity. The new general standard, then, gives much less weight to antitrust principles and allows greater scope for service rationalisation.

To encourage regulation by the market, the new Act also contains certain 'shipper provisions'. Statutory recognition has been accorded to shippers' associations and to service or time/volume contracts which American shippers like. These contracts take the place of the outlawed dual rate system. Additionally, to encourage the flexibility of conferences so as to respond to shippers' needs, conference agreements are required to provide a right of independent action, whereby with ten days' notice, conference members unilaterally can introduce service or non-contract rate charges.

Finally, to address the competitive consequences of carriers controlled by foreign governments, the new Act continues without change the provisions of the 1978 Ocean Shipping Act.

While the US Act moves towards the regulation by the market advocated here and followed in traditional Australian policy, it nevertheless still significantly circumscribes the nature of conference organisation, by mandating that they be open, by the extent of the regulation contained in the legislation and by the procedures and policy by which the FMC will have to implement it. In comparison with the practice of other OECD countries formal regulation, though reduced, will still be considerable and arguably more than is necessary given the current contestable nature of the world's commercially orientated trades. At the same time, however, it remains to be seen how the Act will be enforced, the FMC having yet to finalise the guidelines by which to implement it.

With respect to some of its principal specific provisions, the replacement of service or time/volume contracts for loyalty contracts may be appropriate under the US trading situation though in the case of Australia, where supply is volatile and where neither shippers nor shipowners appear accustomed to the possibility of being penalised for

non-performance, it may be more appropriate to have them as alternative options available for negotiation. Concerning the provision for independent action, while tales of conference inertia and inflexibility suggest that some such measure may not be completely inappropriate here, it could also be argued that the form of conference agreement is best determined by singularly commercial considerations, for provided markets remain contestable a failure to respond to the reasonable needs of shippers will not go unpunished. Similarly, the continuing requirement that conferences remain open is of uncertain merit since such arrangements have long been known to perform less well than closed conferences, especially in terms of rationalisation opportunities (Sletmo and Williams (1981) review the evidence for this), while the greater potential for customer abuse inherent in the latter is already constrained by market contestability.

In sum, then, it appears that given the highly contestable nature of Australia's liner trades, US style regulation may still prove somewhat excessive. Monitoring conference behaviour and performance and enhancing the environmental conditions that influence contestability, especially in relation to port operations and specific problem trades, appear sufficient at present. But in the event that the global supply of shipping were to become tight and market performance consequently demonstrably less than contestable, more active regulation in the style of the 1984 US Act may be a possible consideration. The likelihood of this, however, is remote given that enduring shortages of supply appear unlikely to transpire in the forseeable future.

CHAPTER 7 CONCLUDING REMARKS

The combination of a relatively small population, a huge potential for primary product production and an uncertain comparative advantage in manufacturing has rendered international trade vital to the health and development of the Australian economy. In the servicing of its trading needs ocean shipping plays clearly the dominant role, carrying by value some 87 per cent of the total. And of ocean borne trade, the liner sector carries just over half by value. This dependence, in conjunction with the fact that the principal Australian liner exports face stiff competition from other sources of supply in world markets indicates the extent to which the national interest depends on an efficient liner shipping industry. Geographic isolation, the relatively thin nature of many Australian trades and cartel agreements between carriers have, however, perennially raised questions about whether the required efficiency levels are being attained. These fears, moreover, have recently been compounded by the global problems over overtonnaging, increasing political interference and technological and organisational changes in the industry. Additionally, the uniquely Australian issues of shorebased costs, trade union influence, the organisation of shippers and the role and financing of the national line have added to the concern over both the current performance of the industry and the appropriateness of existing policy.

Although clearly urgent, the positive and normative analysis of the industry has proved both difficult and controversial. A number of factors greatly complicate the study of the industry such as:

- the differences between liner shipping and typical manufacturing in terms of the flexibility of production and the ability to utilise inventories in supply management;
- the difficulties of establishing 'fair' price/cost relationships given insurance externalities;
- the preponderance of common costs in its operations;
- the backhaul problem and the influence of exogenous factors on sustainable load factors;

- the recurring problem of identifying necessary and sufficient conditions for workable competition; and
- the existence of a wide variety of different groups with an interest in liner shipping, an interest which may legitimately embrace political and diplomatic considerations in addition to economic matters.

Given this background of a manifest need for effective analysis and the presence of conditions which have rendered traditional efforts conflicting and sometimes unconvincing, an attempt was made to apply the relatively new and controversial theory of contestable markets to the Australian liner shipping industry. In the main, the conditions required for contestability were observed to a reasonably high degree: sunk costs were normally low, contractual practices were such as to satisfy the requirements of price sustainability, firms were generally similarly positioned with respect to access to technology and customers, and the pool of potential entrants was appropriately large. Admittedly, some potential impediments to contestability were isolated in the form of ownership of terminal facilities, the greater requirement of reefer capacity in Australia than in trades elsewhere, trade union favouritism, the existence of national lines and other political interference. Such potential impediments, however, were shown to be either trade specific in extent or else of minimal consequence under current trading conditions. The conclusion that Australia's liner trades are *generally* highly contestable was supported by the revealed behaviour of the industry; in particular the rate of entry and exit was seen to be high on the major trades and its disciplining effect appeared decisive, as evidenced in the acknowledged low profitability of the industry, the investment behaviour of established lines serving Australia and freight rate trends. It was, however, noted that this overall conclusion on the extent of contestability was contingent upon current trading conditions - conditions which embody an abundance of potential competitors that may quickly become actual competitors - and as such it could not be taken for granted.

It was also shown that the evidently monopolistic type pricing structure of conference lines could be reconciled with their seemingly non-monopolistic industrial structure by noting that the common cost problem imposes a pricing constraint similar to that of natural monopoly - namely the financial loss inherent in marginal cost pricing. Conferences, however, respond with value of service pricing which in conjunction with their highly contestable market environment,

leads to the spontaneous adoption of second best Ramsey optimal prices.

The normative and policy implications of the theory's application were developed on the assumption that the country's national interest should be primarily identified with that of its shippers. In this respect, the finding that Australia's trades are generally highly contestable indicates that shippers' interests are currently being served by the market since carriers will be forced to operate efficiently and to pass the benefits of that efficiency on to shippers. The presence of conferences does not materially detract from this conclusion as the extent of non-conference competition, the threshold of entry and the magnitude of the pool of potential entrants currently available effectively removes the market power normally associated with such organisation. Moreover, the existence and survival of the conference system suggest that it must have some cost advantages, advantages which market conditions will again force it to pass on to shippers. Consequently, the banning or the active regulation of conferences would currently serve no useful purpose. Instead it was suggested that policy should be orientated around the principle of subjecting conferences and other carriers to maximal regulation by the market.

Contestability theory teaches that market regulation will be greatest and most beneficial when the pool of potential entrants is large and when the three contestability conditions are satisfied. Australia obviously has no control over the former. The key task of policy is therefore to maintain or enhance the degree to which the other conditions can be realised. In this respect, scope exists for minimising the consequences of the impediments to contestability listed previously. Concerning port operations, an extension of common user berths and the development by port authorities of a set of by-laws ensuring universal non-discriminatory access to terminal facilities is a possibility. Additionally, strong, informed and active shipper associations including freight forwarders, producer bodies and the Australian Shippers' Council would be useful in combating any local impediments to contestability issuing from specific capital requirements or other non-political sources. Finally, diplomatic means may be used to address political impediments arising from the policies or behaviour of both foreign governments and of domestic trade unions. The presence of ANL may indeed facilitate the former since it could be used as a lever to help effect reciprocal governmental shipping arrangements.

Although the active regulation of conferences appeared neither necessary nor desirable it was advocated nevertheless that it would be prudent to monitor their behaviour and agreements since under conditions of chronic shortages of shipping space, the potential for shipper abuse is considerably greater under conference organisation than would be the case under a regime of independent competition. The likelihood of this and therefore of the desirability of stronger medicine such as is embodied in the 1984 US Shipping Act seems, however, remote since it is difficult to conceive of any conditions that could bring about chronic and enduring shortages of shipping space in the foreseeable future.

It is interesting to note that in the main, the policy implications of the theory of contestable markets as applied to liner shipping are little different from traditional Australian practice. Primarily, this is because the theory simply offers a new rationalisation of conditions, particularly potential competition, whose consequences have long been suspected. This does not mean, however, that in maritime economics the theory is redundant for what it does effectively accomplish is an explanation of the circumstances which influence the *degree of discipline* exerted by market forces in a situation of market concentration, multi-product production, economies of scale and capital intensive methods of production. Indeed, by expressly addressing these conditions which are so obviously present in liner shipping, the theory appears eminently suited for inclusion in the theoretical arsenal of the maritime economist and policy maker alike.

REFERENCES

Agman, R. S. (1976), 'Competition, Rationalization and United States Shipping Policy', *Journal of Maritime Law and Commerce*, vol. 8, no. 1, 1-58.

American Shipper, January 1978.

Andrews, P. W. S. (1949), *Manufacturing Business*, MacMillan, London.

Australian Bureau of Statistics (1985), *Shipping and Air Cargo Commodity Statistics, Australia*, Cat. no. 9206.0.

Australian Meat and Livestock Corporation (1985), *Submission to Task Force Reviewing Liner Shipping Arrangements*.

Australian National Line (1984), *Annual Report*.

Australian Shippers' Council (1984), *Annual Report 1984*.

Bailey, E. (1981), 'Contestability and the Design of Regulatory and Antitrust Policy', *American Economic Review*, vol. 71, no. 2, May.

Bailey, E. and Friedlaender, A. F. (1982), 'Market Structure and Multiproduct Industries', *Journal of Economic Literature*, vol. 20, 1024.

Bailey, E. and Panzar, J. (1981), 'The Contestability of Airline Markets during the Transition to Deregulation', *Law and Contemporary Problems*, vol. 44, winter.

Bain, J. (1949), 'A Note on Pricing in Monopoly and Oligopoly', *American Economic Review*, vol. 39, 448.

__ (1965), *Barriers to New Competition*, Harvard U.P.

Bator, F. M. (1957), ' The Simple Analytics of Welfare Maximisation', *American Economic Review*, vol. 47, 22-59.

Baumol, W. J. (1982a), 'Contestable Markets: An Uprising in the Theory of Industry Structure', *American Economic Review*, vol. 72, no. 1, March, 178-183.

__ (1982b), 'Contestable Markets, Antitrust and Regulation', *The Wharton Magazine*, vol. 7, 30.

__ (1984), 'Some Subtle Issues in Railroad Regulation: Reply', *International Journal of Transport Economics*, vol. 11, August-December.

Baumol W. J. and Bradford, D. E. (1970), 'Optimal Departures from Marginal Cost Pricing', *American Economic Review*, vol. 60, 265.

Baumol, W. J., Panzar, J. C. and Willig, R. D. (1982), *Contestable Markets and Theory of Industry Structure*, Harcourt Brace Jovanovich, New York.

__ (1983), 'Contestable Markets: An Uprising in the Theory of Industry Structure: Reply', *American Economic Review*, vol. 73, June.

Bennathan, E. and Walters, A. A. (1969a), *The Economics of Ocean Freight Rates*, Praeger, New York.

__ (1969b), 'Revenue Pooling and Cartels', *Oxford Economic Papers*, vol. 21, no. 2, 172.

__ (1972), 'Shipping Conferences: An Economic Analysis', *Journal of Maritime Law and Commerce*, vol. 4, no. 1.

Blaug, M. (1980), *The Methodology of Economics*, Cambridge U.P.

Bohme, H. (1978), *Restraints on Competition in World Shipping*, Thames Essay No. 15, Trade Policy Research Centre, London.

Brock, W. A. (1983), 'Contestable Markets and the Theory of Industry Structure: A Review Article', *Journal of Political Economy*, vol. 91, December.

Brooks, M. (1984), 'An Alternative Theoretical Approach to the Evaluation of Liner Shipping', *Maritime Policy and Management*, vol. 11, no. 1.

Brunner, E. (1961), 'A Note on Potential Competition', *Journal of Industrial Economics*, vols 9-10, p248.

Bryan, I. (1974), 'Regression Analysis of Ocean Liner Freight Rates on Some Canadian Export Routes', *Journal of Transport Economics and Policy*, vol. 8, May, 161.

Bureau of Transport Economics and Ministry of Transport, New Zealand (1980), *Trans-Tasman Shipping*, AGPS, Canberra.

Bureau of Transport Economics (1981), *Papers and Proceedings of the Workshop on the Economics of Shipping Australian Agricultural Exports*, 11-12 February 1980 (vols 1 & 2) AGPS, Canberra.

__ (1982), *Cargo Centralisation in the Overseas Liner Trade*, Report 52, AGPS, Canberra.

__ (1984), *Shore-Based Shipping Costs Seminar, Sydney, July 1984, Papers and Proceedings*, AGPS, Canberra.

__ (1986), A Study of Liner Shipping Services into and out of Australia, Report 60 (vol. 2), AGPS, Canberra, (in press).

Cassidy, P. (1981a), *The Cargo Liner Shipping Industry: Structure, Conduct and Performance*, contained in BTE (1981).

__ (1981b), *Australian Liner Shipping Policy: A Critique*, contained in BTE (1981).

Clark, J. B. (1912), *The Control of Trusts*, MacMillan, New York.

Clark, J. M. (1940), 'Toward a Concept of Workable Competition', *American Economic Review*, July.

Committee of Inquiry into Shipping (1970), *Report*, Cmd 4337, HMSO, London.

Conlon, R. M. and Zerby, J. A. (1983), *Public Policy in Liner Shipping Industry*, Centre for Applied Economic Research, Paper No. 20, University of New South Wales.

Cotton, A. R. (1984), 'Conference-Shipper Loyalty Contracts: Time for a Rethink?', *Maritime Policy and Management*, vol. 11, no. 2.

Crawford, J. (1981), *Revitalisation of Australian Shipping: An Overview*, AGPS, Canberra.

Damus, S. (1981), 'Two-Part Tariffs and Optimal Taxation: The Case of Railway Rates', *American Economic Review*, vol. 71, March.

Davies, J. E. (1983), 'An Analysis of Cost and Supply Conditions in the Liner Shipping Industry', *Journal of Industrial Economics*, vol. 31, no. 4, 417-435.

__ (1984), *Pricing in the Liner Shipping Industry: A Survey of Conceptual Models*, Canadian Transport Commission, Ottawa/Hull.

__ (1985), 'The Role of Contestability Theory in the Economic Analysis of Liner Shipping', *Maritime Studies*, no. 22, March/April.

__ (forthcoming), 'The Theory of Contestable Markets and its Application to the Liner Shipping Industry, Canadian Transport Commission, Ottawa/Hull.

Davies, G. and Davies J. E. (1984), 'The Revolution in Monopoly Theory', *Lloyds Bank Review*, no. 153, July, 38.

Deakin, B. M. and Seward, T. (1972), *Shipping Conferences*, Cambridge U.P.

Demsetz, J. (1968), 'Why Regulate Utilities', *Journal of Law and Economics*, vol. II, PSS.

Department of Justice (1977), *The Regulated Ocean Shipping Industry*, Washington DC.

Department of Transport (1978), *Report on Review of Overseas Shipping Legislation*, AGPS, Canberra.

Devanney, J. W. et al (1975), 'Conference Pricing and the West Coast of South America', *Journal of Transport Economics and Policy*, vol. 9, no. 2.

Ellsworth, R. A. (1979), 'Competition or Rationalisation in the Liner Industry', *Journal of Maritime Law and Commerce*, vol. 10, no. 4.

Evans, J. J. (1977), 'Liner Freight Rates, Discrimination and Cross Subsidisation', *Maritime Policy and Management*, vol. 4, no. 4, 227.

Fossey, J. and Pearson, R. (1983), *World Deep-Sea Container Shipping*, Marine Transport Centre, University of Liverpool.

Friedmann, P. A. and Devierno, J. A. (1984), 'The Shipping Act of 1984: The Shift from Government Regulation to Shipper Regulation', *Journal of Maritime Law and Commerce*, vol. 15, no. 3, 311-351.

Gardner, B. (1978), 'An Alternative Model of Price Determination in Liner Shipping', *Maritime Policy and Management*, vol. 5, no. 3, July.

Gardner, B. M., Goss, R. O. and Marlow, P. B. (1984), 'Ship Finance and Fiscal Policy', *Maritime Policy and Management*, vol. 11, no. 3.

Gardner, B. and Richardson, P. W. (1973), 'The Fiscal Treatment of Shipping', *Journal of Industrial Economics*, vol. 22.

Gaskins, D. (1971), 'Dynamic Limit Pricing', *Journal of Economic Theory*, vol. 3, 305.

Gilman, S., Maggs, R. P. and Ryder, S. C. (1977), *Containers on the North Atlantic*, Marine Transport Centre, University of Liverpool.

Gratwick, J. and Kirby, M. (1984), 'Multimodal Ownership and Intermodality', contained in *Proceedings of the 19th Annual Meeting of the Canadian Transport Research Forum*, Jasper, Alberta, May.

Hall, R. L. and Hitch, C. J. (1939), 'Price Theory and Business Behaviour', *Oxford Economic Papers*, no. 2.

Heaver, T. (1982), *Liner Conferences: Issues with Special Reference to Freight Rates*, Transport Canada, Ottawa.

House of Representatives, Hansard, 16 May 1985.

__ Hansard, 17 May 1985.

Hunter, A. (1967), 'Some Notes on National Shipping Lines: The Australian Case', *Economic Record*, vol. 43, no. 101, 20.

Jansson, J.O. (1974), 'Intra Tariff Cross Subsidisation in Liner Shipping', *Journal of Transport Economics and Policy*, vol. 4, no. 3.

Jantscher, G.R. (1975), *Bread Upon the Waters: Federal Aids to the Maritime Industries*, Brookings, Washington DC.

Joskow, P. L. and Klevorick, A. K. (1979), 'A Framework for Analysing Predatory Pricing Policy', *Yale Law Journal*, vol. 89, 213-260.

Kamien, M. and Schwartz, N. (1971), 'Limit Pricing and Uncertain Entry', *Econometrica*, vol. 39, 441.

Koutsoyiannis, A. (1979), *Modern Microeconomics*, MacMillan, London.

Lee, F. S. (1983), *Full Cost Pricing: An Historical and Theoretical Analysis*, Ph.D. Thesis, Rutgers University.

Maechling, C. (1977), 'Uncle Sam's Long Arm', *American Bar Association Journal*, vol. 63, 372.

Maritime Administration (1983), *Maritime Subsidies*, US Department of Transportation.

Marx, D. (1953), *International Shipping Cartels*, Princeton UP.

Minister for Transport (1984a), *Media Release*, 26 September 1984.

__ (1984b) *Media Release*, 13 December 1984.

Modigliani, F. (1958), 'New Developments on the Oligopoly Front', *Journal of Political Economy*, vol. 66, 215.

OECD (1982) *Maritime Transport*, Paris.

__ (1983) *Maritime Transport*, Paris.

__ (1984) *Maritime Transport*, Paris.

Pearson, R. (1980), *Containerline Performance and Service Quality*, Marine Transport Centre, University of Liverpool.

Principal Australian Conferences (1984), *Background Paper on Australia's Overseas Cargo Shipping Legislation*, Submission to Task Force for Review of Australia's Overseas Liner Shipping Arrangements.

Royal Commission on Shipping Rings (1909), Report Cd. 4668, H.M.S.O., London.

Schneerson, D. (1976), 'The Structure of Liner Freight Rates - A Comparative Route Study', *Journal of Transport Economics and Policy*, vol. 10, 52-67.

Schwartz, M. and Reynolds, R. J. (1983), 'Contestable Markets: An Uprising in the Theory of Industry Structure: Comment', *American Economic Review*, vol. 73, June.

Shepherd, W. G. (1982), 'Competition and Sustainability', contained in *Deregulation: Appraisal Before the Fact*, ed. by Gies, T. G. and Sickel, W., Michigan, U.P.

__ (1984), 'Competition v Contestability', *American Economic Review*, vol. 74, no. 4.

Sletmo, G. K. and Williams, E. W. (1981), *Liner Conferences in the Container Age*, MacMillan, New York.

Sosnick, S. H. (1958), 'A Critique of the Concepts of Workable Competition', *Quarterly Journal of Economics*, vol. 72.

Stigler, G. J. (1968), *The Organisation of Industry*, R. D. Irwin.

Stubbs, P. (1983), *Australia and the Maritime Industries*, A.I.D.A., Melbourne.

Sylos-Labini, P. (1962), *Oligopoly and Technical Progress*, Harvard, U.P.

Taplin, J.H.E. (1982), *Australian Transport: Current Issues and Policy Options*, Discussion Paper No. 5, Parliamentary Library.

Trace, K. (1981), *The Role of Liner and Bulk Shipping in the Carriage of Australian Agricultural Products*, contained in BTE (1981).

__ (1984), *Submission to Task Force on Australia's Overseas Liner Shipping Arrangements*, mimeo.

Tye, W. B. (1984), 'Some Subtle Issues in Railroad Regulation: Comment', *International Journal of Transport Economics*, vol. 11, August-December.

United Nations (1981) *Year Book 1981*.

UNCTAD (1975), *Costs and Freight Rates in Liner Trades*, TD/4/C.4/128, Geneva.

__ (1979), *Merchant Fleet Development*, TD/222, Manila.

Weitzman, M. L. (1983), 'Contestable Markets: An Uprising in the Theory of Industry Structure: Comment', *American Economic Review*, vol. 73, June.

Williamson, O. E. (1976), 'Franchise Bidding for Natural Monopolies', *Bell Journal of Economics*, vol. 7, 73.

Winston, C. (1981), 'The Welfare Effects of ICC Rate Regulation "Revisited"', *Bell Journal of Economics*, vol. 12, 232.

Zerby, J. A. (1982), 'Competition in Cargo Handling: Some Comments', *Maritime Policy and Management*, vol. 9, no. 4.

__ (1984), 'Regulating Ocean Shipping in the USA: Historical Perspective and Current Trends, *Great Circle*, vol. 6, no. 1.

__ (1984), *The Theory of Contestable Markets and Its Implication to Overseas Liner Shipping from Australia*, Attachment B of "A Background Paper by Various Liner Shipping Conferences in the Australian trade on 'Australia's Overseas Cargo Shipping Legislation', October, Sydney.

__ (1985), untitled submission to Mr R. W. Knapp, Secretary of the Task Force for Review of Australia's Overseas Liner Shipping Arrangements, 29 April.

Zerby, J. A. and Conlon, R. M. (1983), 'Joint Costs and Intra Tariff Cross Subsidies: the Case of Liner Shipping', *Journal of Industrial Economics*, vol. 31, no. 4.

ABBREVIATIONS

ABS	Australian Bureau of Statistics
ACT(A)	Associated Container Terminals (Australia) Ltd
ANL	Australian National Line
ANSCON	Australian Northbound Shipping Conference
AOTA	Australian Overseas Transport Association
ASC	Australian Shippers' Council
CIF	Cost, Insurance, Freight
EEC	European Economic Community
FESCO	Far East Shipping Company
FOB	Free on Board
GDP	Gross Domestic Product
LRAC	Long Run Average Cost
LRMC	Long Run Marginal Cost
NVOC	Non-Vessel Operating Carrier
OECD	Organisation for Economic Co-operation and Development
OCL	Overseas Containers Ltd
PAD	Pacific Australia Direct line
PFEL	Pacific Far East Line
SRAC	Short Run Average Cost
SRATC	Short Run Average Total Cost
SRAVC	Short Run Average Variable Cost
SRMC	Short Run Marginal Cost
TEU	Twenty foot Equivalent Unit
UNCTAD	United Nations Conference on Trade and Development