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ISSN 1046-1469  
Indexed by PAIS

# ***JOURNAL OF THE TRANSPORTATION RESEARCH FORUM***

**Volume XXXII Number 2**

**1992**

TRANSPORTATION RESEARCH FORUM  
VOLUME 32 NUMBER 2  
1992  
NORTHWESTERN UNIVERSITY



**TRANSPORTATION RESEARCH FORUM**

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Ports - Container handling  
Ports - Competition

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Ports - Competition - Canada

## Issues In North American Container Port Competitiveness

by Mary Brooks\*

### ABSTRACT

In the past several years there has been a dramatic change in the nature of operations in the intermodal transport industry. The globalization of production and markets, the increasing use of just-in-time systems to service this approach and the concurrent rise of megacarriers in the shipping industry have placed added pressure on ports to service the needs of the evolving global distribution systems. Economies of scale on the ocean leg are now almost fully exploited and port costs are a nominal issue in an ocean carrier's door-to-door competitiveness. Ocean container carriers are putting pressure on ports to offer the most efficient inland connections as part of a seamless package they can offer shippers with the result that ports will have to be competitive on more than just traditional container handling facilities and port charges. Slower growth in cargo volumes means that increased competition between North American ports for cargo and carriers is inevitable. This paper identifies a number of issues which will influence the patterns of container port usage which will emerge in the coming decade. They are addressed in four sections—port operating differences, inequalities in industrial support for ports, rail regulatory differences and fiscal differences. There are a number of research deficiencies identified and the paper concludes that a research agenda, and one which moves quickly, is necessary if Canadian ports are to maintain their market share in the face of increasing competition from US competitors.

### INTRODUCTION

The container transport industry is facing a rapidly changing environment. Increased competition on a global scale throughout the 1980s has forced manufacturing firms to consider greater integration of their production processes with suppliers and markets as a means of gaining competitive advantage. Just-in-Time systems, a natural by-product of such integration, are highly dependent on precise international delivery schedules. In order for these systems to work effectively, manufacturers and carriers need to cooperate closely in order to provide a seamless door-to-door service.

But this co-operation has also meant that shippers are dealing with fewer and fewer carriers in order to streamline that service, paving the way for the concurrent development of megacarriers. An analysis carried out by *Containerisation International* has shown that the largest 20 shipping lines controlled 26% of the world's slots in 1980 and, by 1990, that share had grown to 39%. Booz Allen & Hamilton Inc. (1990) predicts that by 1995 these 20 carriers will control 50% of the world's slots. Corporate concentration in the industry will favour the further development of hub and spoke operations which will reduce the number of ports servicing the major carriers. Ports not catering to megacarriers will need to focus their energies on acquiring the business of the smaller niche operators.

Not only are a few carriers seeking dominance of the carrying capacity but they are doing so with larger vessels. The economies supporting the trend to larger vessels are clear, and such vessels need port facilities that can process large volumes of containers quickly with post-Panamax equipment. The trend to larger ships and a faster turnaround has raised the stakes for ports. The loss of a line or group of lines has greater consequences, putting more pressure on ports to provide the deepest access, the best facilities and most efficient equipment as a measure of market protection. But these will still not protect the port from predators. Ports need to take a wider view, realizing that they are a link in a door-to-door offering and evaluate their prospects as only one element in the door-to-door move.

Technological advances in the industry, such as electronic data interchange and the development of doublestack rail cars, have stimulated cooperation within the industry, between shipper and carrier and between carriers on different legs of the move. Such cooperation would have been more difficult in the era prior to the US *Staggers Act of 1980* and the *Shipping Act of 1984*. The resulting investment by shipping lines in landside operations and the growth of doublestack services has changed the pattern of port competition. In April 1984, there was only one weekly eastbound double-stack train operating from LA/Long Beach to Chicago. By May 1989, there were 114 weekly eastbound services from US west coast ports

and service extended east to Boston, New York, Baltimore, Charleston and Savannah (Brennan, 1989), and has since moved south into Mexico. Significant cost savings are possible with doublestack technology creating further competitive advantages for ocean operators which align themselves with American railroads; in 1985, average costs per loaded mile ran at US\$.79 for traditional TOFC (trailer on flat car) moves and US\$.56 for doublestack container moves (Grimm and Smith, 1985). Although it is not clear that such economies are more generally applicable, there is a perception that ports without access to doublestack services will not be in the top ranks by the end of the 1990s.

The mere existence of doublestack services has stretched the limits of the traditional markets each port serves. As each North American port competes continent-wide for cargo in a slowly growing market, the competitive pressure on ports will increase even further. Events of the past five years have set the scene for this paper's preliminary analysis of the issues facing Canadian ports and their competitiveness within North America in the coming decade. This paper sets out four major areas ports need to review in order to evaluate their competitiveness and identifies the current state of knowledge in each. The point of view is Canadian, the framework continental.

### MEETING THE MARKET CHALLENGE - OPERATING DIFFERENCES

Many ports begin by examining their port charges when evaluating their competitive position. In the area of port charges, Canadian container ports continue to show a significant cost advantages over their US counterparts, according to a Canada Ports Corporation review (Ansary, 1989):

- Halifax and Montreal offer carriers vessel and cargo handling costs per TEU in the range of 50-65% of those charged in New York; this is lower than the four east coast ports of Charleston, Norfolk, Baltimore, and New York (which includes a 50% reduction in New York's ILA assessment).
- Number of moves per gang hour are highest at Halifax and Saint John with the poorest performance of six east coast ports studied being recorded by New York and Baltimore.
- Port facility utilization: Moran Container Terminal in Boston processes the highest number of TEUs per berth, with Halifax's Fairview Cove facility coming second and Baltimore's Dundalk Marine

Terminal third. Montreal's CAST terminal and Vancouver's Vanterm rank 4th and 5th out of eleven examined. When facility utilization is looked at in terms of TEU per crane, Fairview Cove (Halifax), the CAST Terminal (Montreal) and Vanterm (Vancouver) are ranked first, second and third.

- Pilotage charges: Halifax tariffs are almost a third lower than those in Charleston, the next lowest cost service. Norfolk's charges are slightly more than those at Charleston for an 1800 TEU vessel. At the other end of the continuum are the ports of New York, Baltimore and Montreal. The length of the St. Lawrence River and Baltimore's Harbour and Channels put pilotage costs up dramatically and also dictate that these ports (which have the advantage of being closer to the market) have the disadvantage of a longer ocean transit time for the cargo.<sup>2</sup>

A study conducted by the Canadian Transport Commission (Ray, 1986) examined the relative position of Halifax, Montreal and Saint John from a cost perspective in servicing North Atlantic trade. The study found that Halifax, then Saint John and then Montreal offered carriers the lowest costs per TEU slot of six route combinations on the North Atlantic (See Exhibit 1). The relative competitive positions were largely due to port and container handling charges, and the study concluded the most important operating cost factor to the carrier was the wide variation in container handling charges. The study noted that, for example, if port costs in New York were equalized with those of Baltimore, the difference in the cost per TEU between the Montreal route and the New York route would drop from 42% to 15%. It also concluded that Montreal's future is vulnerable to further development of economies of scale from larger vessels (which would reduce per TEU slot costs) and from increased ice-breaking or pilotage charges on the St. Lawrence. The study only focused on ship operating costs and did not include the costs of marketing the service or any of the inland elements of a door-to-door offering. From the introduction to this paper it should be clear that a broader point of view is needed.

In an effort to market services to cost-conscious ocean carriers, it is not surprising that many ports offer incentive programs to induce shippers and carriers to use the ports. The programs offered by ports in New York, Maryland and Virginia on the east coast are particularly targeted to building their international container business at the expense of rival ports.

The Port of New York and New Jersey announced in late 1989 that they are cutting

## EXHIBIT 1

Comparison of Round-Trip Operating Costs for Alternative Routes on the North Atlantic in 1985 (US\$)<sup>1</sup>

	Montreal <sup>2</sup>	Halifax	Saint John	New York	Baltimore	Triangular Service <sup>3</sup>
Vessel Operating Costs <sup>4</sup>	155,016	154,283	154,283	154,283	154,283	154,283
Fuel	152,769	104,988	126,139	160,112	201,406	208,722
Port Charges	131,628	125,049	126,300	142,323	142,433	171,106
Container Handling Charges	761,694	677,408	677,331	1,258,118	924,715	967,258
Total Operating Costs	1,201,107	1,061,729	1,084,062	1,714,837	1,422,837	1,501,368
Cost per TEU Slot <sup>5</sup>	334	295	301	476	395	417

- Note: 1 The European ports of call for all routes consist of Felixstowe, Hamburg, Antwerp and Le Havre
- 2 Port charges for Montreal represent costs incurred in the summer. In the winter months these increase by US\$ 9,957 per call due to higher charges for pilotage and tugs.
- 3 For the Triangular Service, the North American ports of call are Halifax, New York and Baltimore.
- 4 Vessel operating costs for this category include crew costs, stores and supplies, insurance and maintenance and repairs. Since the vessel operates on a 28-day cycle on all routes, the higher cost associated with Montreal is due to the higher vessel insurance costs for the route.
- 5 Cost per TEU slot is based on the 3,600 TEU slots which are available per round trip.

Source: Table 2, A. Ray, *Operating Costs for a Typical Containership on Alternative North Atlantic Routes*, Ottawa: Canadian Transport Commission, WP-20-86-21, December 1986, p. 13.

rates to ship owners for handling boxes — US\$25 per import container and US\$50 per export container on boxes moving from or to locations more than 260 miles inland. The New York Shipping Association and the International Longshoremen's Association also reduced assessments against ships calling at the port effective January 1990. In addition, the port also maintains shipper/carrier subsidy programs. In spite of these inducements, terminal charges and stevedoring costs remain high and this works against the port. New York is 350 miles closer to central Canadian markets than Halifax and such inducements, coupled with rail service improvements and lower land-side costs could work in the long term to Halifax's disadvantage as most lines calling at Halifax also call at New York (Pander, 1990).

In Baltimore, a rail rate subsidization plan is in effect; the Maryland Port Administration picks up half of the cost of reducing the rates for containers travelling to the US midwest. Discounts of US\$50 per container are offered if the container is destined for Louisville,

Chicago or Detroit and drayed at either the CSX or Conrail terminals. In addition, all lines calling at any Maryland port are able to take advantage of incentives of US\$3 a container effective May 1, 1990. This is alarming because Baltimore is a port of call for many of the lines serving Halifax and, if inland service improvements are forthcoming, its distance from the US midwest could prove to be a competitive challenge to Halifax, although not in the immediate future as the port has yet to reassure carriers that it has resolved its continuing labour problems.

Canadian ports also engage in incentive programs. Montreal enhanced its rebates to container carriers this year; previously, rebates were only given to carriers whose annual volume exceeded 50,000 tonnes. The volume floor was eliminated with all carriers gaining a rebate increase of 15¢ a tonne, to increase the rebate from 53¢ to 68¢ a tonne. Halifax introduced in February 1991 a wharfage rate reduction for US-originating or -destined containerized cargoes; the new rate is 5¢ a tonne with a minimum charge

of C\$1 per TEU. Last year, the Port capped berthage charges (at the rate for 40,000 grt) so that the largest containerships would not be penalized.

However, port incentive schemes are not the only operating factors which attract carriers. They also look at other port charges, inland connections and the availability of electronic data interchange. Brooks (1990) has found that shippers, when selecting carriers, are most concerned about transit time; in fact this is the sole determinant choice criteria<sup>3</sup> and puts the pressure on carriers to meet those needs. Port choice by carriers has become a delicate balancing act of weighing costs and services in order to provide shippers with a seamless service in a cost effective way. To do so, they in turn pressure the ports to lobby for more and better inland connections at a cost effective price.

To meet that challenge, many US ports are moving to incorporate on-dock transfer systems, preferably with doublestack capability; on-dock systems have long provided Canadian ports with an advantage as they reduce the number of times a container is grounded during its journey through the distribution network. Seattle's on-dock facility was only opened in early 1990. Both Boston and New York have doublestack service, but it is located off-dock. New York has on-dock doublestack capability but does not find it economical to use. Baltimore and Hampton Roads expect to have new on-dock doublestack transfer capability in place within the next few years but Baltimore's terminal will still limit the type of doublestack equipment which can be used.

And then of course there is the competitive advantage that doublestack train operations afford the US hub ports, particularly for longhaul inland routes, as illustrated in Exhibit 2. According to Ansary (1989), US railways experienced a 25% to 30% cost savings in the switch from TOFC to doublestack, while estimates of savings for Canadian railroads to move from COFC to doublestack have been forecasted to be in the order of 10-15%. A study conducted by the US Department of Transportation (1990) concluded that doublestack service can be truck-competitive in dense traffic corridors of 725 miles or more and that minimum volumes on such routes of 28,080 containers annually are required. For the three largest Canadian containerports dependent on cargoes originating outside a 600 mile radius, the advantages of doublestack would appear obvious.

In 1989, KPMG Peat Marwick recommended that the Province of Nova Scotia promote the development of rail efficiencies by encouraging the development of doublestack rail cars, perhaps even providing financial assistance for such development. However, Canadian railroads have been slow, partly due to the size of the financial investment involved, to adopt doublestack even though it makes sense given the distances involved between the major inland markets and the ports on the coast. Some of the reticence can be traced to the regulatory and fiscal climate in Canada as there appears to be sufficient demand to warrant its use; these regulatory and fiscal differences will be discussed later in the paper.

## EXHIBIT 2

### Total Double-Stack Operating Costs

	LA-New Orleans 2010 Miles 48 Hours	LA-Oakland 559 Miles 15 Hours
Line Haul \$/unit mile	\$ 0.124	\$ 0.144
Line Haul Cost	249.26	80.55
Line Haul Car Cost	27.03	10.62
Terminal Car Cost	3.49	3.49
Container Cost	32.50	19.50
Terminal Lift	68.00	68.00
Chassis Cost	16.00	16.00
Drayage	280.00	280.00
Total	\$676.28	\$478.16
Total \$/unit mile	\$0.336	\$0.855

Source: U.S. Department of Transportation, *Double Stack Container Systems: Implications for U.S. Railroads and Ports*, June 1990, Table 13.

### INEQUALITIES IN INDUSTRIAL SUPPORT FOR PORTS

Canadian and US container ports face different capital cost structures. Although Canada's Local Port Corporations are autonomous in their investment planning (for decisions under a specified ceiling), they confront problems different to those encountered by their American rivals in their access to government funding for capital projects. This is further complicated by the myriad of port ownership structures, ranging from state-owned to fully private facilities. Although some ports are fully self-financing, they may be in competition with others with easier access to capital. Furthermore, for some US ports, particularly those in the northeast, real estate ownership gives them the opportunity to exert greater control over their destiny, engage in commercial businesses or develop real estate holdings to cross-subsidize port activity.

In Canada, ports are landlord operations; the federal government owns the land. Canadian ports are essentially limited to the Canada Ports Corporation capital expenditure fund which lends money to the ports at current rates of interest. Given the higher interest rates in Canada, the cost of port investment is significantly higher. Besides, Canadian ports face funding limits. A Local Port Corporation may only undertake capital projects up to C\$1 million on its own account; the Canada Ports Corporation may approve projects up to C\$10 million and beyond that, the approval of the Minister of Transport is required. On the other hand, American ports have access to a broader array of funding options for port investment and not all of them incur commercial rates of interest. The Maritime Administration (1991) has completed a study on port investment and of the US\$5.6 billion spent between 1979 and 1989, 70% was for new construction. The report concluded that, in future, the port industry will have difficulty prying funds from local governments and will be faced with the necessity of generating the funds needed internally. Borrowing funds at commercial rates of interest is critical if competition is to be fair.

Canadian ports also pay their own form of property taxes—grants in lieu of taxes—to the municipalities in which they reside. Yet for a number of American ports, the municipal or state government is viewed instead as a source of funds for capital improvements needed for the port. The port of Baltimore benefits from a high level of state subsidy while the Port of Seattle has received a steadily increasing income from the property taxes it levies. The level of financial support of this type varies dramatically from port to port but in cases where it is high, like Baltimore and Seattle, the result is distortion of the market. In the long run, the capital

investment restraints facing Canadian ports will need to be balanced by American taxpayer constraints on municipal support for US ports or it will become difficult for Canadian ports to maintain traffic at or above the critical volume necessary to be in the global game.

Subsidies are a factor affecting the inland leg as well. The US government has provided an infusion of US\$3.2 billion to modernize and update Conrail's infrastructure and rolling stock. The states of New York and Pennsylvania have committed US\$8 million to Canadian Pacific for capital improvements to the Delaware and Hudson (D&H) Railway. As another example there is the US\$34 million in Maryland state funds to support Baltimore's new intermodal yard. Both of Canada's Class I railroads are self-financing. Canadian Pacific is a publicly-traded company responsible to its shareholders while Canadian National, although a Crown Corporation, has no access to the federal public purse (although it has recently negotiated some support from the Province of Nova Scotia in the form of assistance with the cost of locally-built doublestack cars). Subsidies tip the competitive balance and in recessionary times increasing protectionism is often the response.

But access to capital and subsidies are not the only areas for review. Dredging is one example where the inequalities are clear. It is difficult to put these investments on a time scale but, as of October 1990, the US Army Corps of Engineers had authorization for the following major investments for competitors of Canadian container ports (Grier, 1990):

- **Port of New York/New Jersey** - Authorization for dredging the Kill Van Kull - Newark Bay Channels, with an estimated cost of US\$350 million (US\$227.5 million federal funding).
- **Baltimore** - Authorization for dredging the Baltimore Harbor and Channels, with an estimated cost of US\$315 million (US\$135.8 million federal funding).

The dredging of Baltimore's Brewerton Channel, for example, will save shipping lines up to two hours of transit time, thereby reducing one of the competitive disadvantages the port has in competing for North Atlantic cargoes. The Kill Van Kull dredging in New York, expected to be completed in 1995, will take the channel from 35 feet to 40 feet, with further work for 45 foot depths in planning for after 1995. Each of these projects threatens the continued movement of container goods via Halifax and Montreal. At this point in time, post-Panamax ships call at New York and, because of draught limitations, are unable to fully load. They take on minimum bunkers and, before leaving the continental

shelf for Europe, make a minor detour to Halifax to top-up with containers and to load bunker exempt from provincial sales tax. This, along with competitive labour productivity and port charges, has secured a strong position for Halifax on the routes of many of the large carriers. With the dredging of New York, such a role is redundant. New York will want to secure full loads for ships calling at the port and what better target hinterland than the dense Canadian markets of Ontario and Quebec to the North served by Montreal and Halifax and the US Midwest cargo now moving through Halifax and Montreal. Baltimore too covets these markets.

Finally, Canadian ports face the added strain of the current government move towards greater cost recovery. Cost recovery in principle is necessary for market efficiency but does pose a threat to those most affected by it. The difficulty is one of reconciling the efficiency of an overall trading system with that of the benefits enjoyed by individual elements in it. One estimate of the impact of cost recovery on vessels serving Montreal predicts that the cost per call of a container vessel serving Montreal will increase by C\$10,000.<sup>4</sup>

In the US, there is some cost recovery of Corps' maintenance dredging costs through the imposition of a charge of .125% of the value of containerized cargo imported or exported. The charge can, on high value goods, add 5% to the total ocean freight bill if goods are exported or imported via US ports (*Marine Log*, 1990). Such a change, unrelated to its use, is distorting in its effect. In addition, US customs charges for its services at American ports unlike most other ports in the world.

Thus, there are inequities on both sides of the border. No where are these well documented or examined in any comprehensive way. What data is available is not comparative in its reporting and often dated. The concepts of "subsidy" and "cost recovery" need to be more clearly defined and a rational approach taken to their study. Although it has been implied that dredging is a subsidy when not charged to the client port on a cost recovery basis, the imposition of an untied Harbour Maintenance Fee based on value of goods is the poorest of methods to recover some of that expense. A clear research need exists but will require a well-developed conceptual framework or the task will be too large to be concluded either satisfactorily or expediently.

## RAIL REGULATORY DIFFERENCES

One of the largest threats to Canadian ports arises from differences between the Canadian and US regulatory environments

in which inland carriers must operate. Because the long-haul international containers move primarily on landbridge systems operated by the railroads, this paper focuses on the regulatory differences on rail side. That does not mean that truck regulation is not a concern. Any further support of the trucking industry, by for example vehicle weight limits as proposed in the US national transportation policy statement, *Moving America: A Statement of National Transportation Policy*, will obviously affect the road/rail share of the long-haul market, and therefore influence the hinterland servicing capability of particular ports. As the three largest Canadian containerports service long-haul markets, the focus here is one on rail regulatory differences; for some US ports, their cargo mix may mean road regulatory differences are more critical to their long-run competitiveness.

Canadian railroads have only been partially deregulated since 1987, with the passage of the *National Transportation Act, 1987*. Their US counterparts have had since 1980 to adjust to the market test provided by the *Staggers Act of 1980*. When coupled with the innovative climate possible because of the *US Shipping Act of 1984*, ocean carrier-led innovation in intermodal systems changed the face of US intermodal rail activities. In Canada the intention of the *National Transportation Act, 1987* was to move the industry into a more market-driven economy. In such an environment, doublestack operations would offer a technological solution to problems of high costs and low freight rates by fostering economies of scale. However, the introduction of competitive line rates (CLRs) to protect captive shippers, and the fact that such rates give the competing line access to its rail lines has acted as a disincentive to each of the railway companies to make the large investments necessary to implement doublestack. CLRs do not apply to intermodal traffic, with the exception of container traffic to and from Canadian ports. Initially designed to protect captive users, like the Port of Halifax, the existence of CLRs may in fact be hampering the upgrade of the port's inland connections.

The competitive line rate provision is not the only one which deters Canadian railways from investing in doublestack operations. The abandonment provisions found in Section 159 of the *National Transportation Act, 1987* limit the railways' ability to make the necessary rationalizations to improve return on capital to a level where funds can be made available for doublestack investment. US railways were given the freedom to manage while Canadian railways could only abandon 4% of track in any given year. It was noted recently that CN carries 90% of its traffic on only one-third of its track while CP carries 97% of its traffic on 50% of its track.<sup>5</sup>



It is very clear that the continuing costs associated with surplus rail infrastructure will persist in draining funds which could be used for rail investment in the major traffic corridors. In the US, abandonment and rationalization were possible and enabled the rail carriers to shed unprofitable business. They were left with a solid base on which to build doublestack operations and were able to retrieve lost market share from the motor carrier industry on long-haul operations (Abruzzese, 1990). On the other hand, in Canada rail's share of the road/rail market has dropped to 30% from the 70% it held in the 1950s but the industry is still saddled with many unprofitable routes (Hirst, 1991). And that is why CP and CN are both looking south for business, CP with its D&H acquisition and CN with its interest in Grand Trunk Corporation. The operating cost for Canadian railways operating in Canada has been estimated as 28% higher than that of a US railway in the US (Ansary, 1989).

### FISCAL DIFFERENCES

Part of the ability of ports to compete lies in their access to low cost inland transport to major cargo-originating or -destined regions. This provides ports like Montreal, Philadelphia and LA/Long Beach with an advantage in that they lie close to the major supplying and consuming industrial centres of North America. (Philadelphia and Los Angeles have populations of 60 million and 20 million respectively within a 300 mile radius.) But for ports like Halifax and Seattle/Tacoma, where the majority of cargo moves a significant distance inland, the competitiveness of the major inland mode becomes critical. And this includes fiscal competitiveness.

In 1990, The Conference Board of Canada, funded by Transport Canada, completed an evaluation of the corporate tax burden on the Canadian railway industry in comparison with the US rail industry. The study examined four scenarios, a matrix of two revenue streams (high and low) and two discount rates (5% and 10%). The study is particularly valuable because it examines both the corporate tax structure on income and the commodity tax structure on inputs. The corporate income tax structure was not found to be a contributing factor to the disparity between the Canadian railway industry and the American railway industry in terms of taxes payable as a percentage of accumulated net cash flow before taxes (Grant, 1990). The study concluded that

The Canadian corporate tax system applicable to the railway industry is not competitive with that of the United States. . . . Of particular importance is the relatively high provincial fuel

taxes. Railways pay these without any corresponding benefit in terms of provincial investment in railway infrastructure. . . . [B]ecause of the relative importance of provincial taxes in the total tax paid by the railways and the continued existence of a fairly high federal excise tax on fuel, these federal initiatives have been insufficient to make the Canadian system competitive with that of the United States.<sup>5</sup>

The study has been criticized for its high estimates of American property taxes; they vary considerably from state to state. The Canada-US difference in taxes would be even greater if the property tax estimates were reduced because, in all four scenarios, the American property taxes were higher than the Canadian. This criticism does not, therefore, alter the evidence that Canadian railways are fiscally disadvantaged in comparison with their American counterparts and that the disparity can be traced, in large measure, to commodity taxes—federal fuel excise taxes on diesel, provincial sales tax and provincial fuel tax on diesel.

It has been estimated that each doublestack train running from the west coast to central Canada costs C\$10,000 more in fuel taxes alone if operated on the Canadian side of the border than if run on the US side of the border (Hirst, 1991). Estimates of the impact of fiscal differences vary, from a Canadian disadvantage of 25-28% (Hirst, 1991) to 45% (Canadian National, 1990). Nova Scotia is the only province in Canada which does not levy a fuel tax on locomotive fuel and it is highly unlikely that the other provinces can be convinced to give up this lucrative source of income.

In addition to the actual levying of taxes, there is also the variation in fiscal incentives to be considered; differences in depreciation rates need to be harmonized if carriers are to operate on a more equivalent basis. If the differences inherent in the two fiscal regimes are added to the impact of previously discussed state and municipal financial support and earlier railroad deregulation in the US, American railroads will find the business relatively easy to take away from Canadian railroads with their primary East-West orientation. With such vulnerability in mind, it is not surprising that Canadian Pacific has made North-South rail investments with its controversial acquisition of the D&H and Soo Line rail lines, much to the chagrin of the port of Halifax already feeling threatened by US port capital projects. After all, the ports of Halifax and Montreal have been facing some erosion of their Pacific trade already with the mammoth US doublestack network to US west coast ports at a time when Canadian rail investment is hampered by insufficient capital. Alternately, with their intact east-west networks, Canadian railroads

have the advantage of through connections coast-to-coast offering the possibility that Canadian ports might eventually compete successfully against US ports in the Europe-Far East trade. The current development of landbridging operations by both of Canada's Class 1 railroads would suggest that this is the way Canadian railroads will try to regain lost container traffic. Canadian ports should stand to benefit from these initiatives.

### A CANADIAN POINT OF VIEW

The threat of container diversion of Canadian cargo through US ports is growing. Canadian container ports have reached that critical mass of competitive size only by catering to US cargo transhipped through Canada. The extent of that dependence is illustrated in Exhibit 3. Prior to 1986, Canada maintained a net traffic surplus on both east and west coasts but, by 1987, Canadian ports enjoyed a positive traffic balance only on the east coast, which was sufficient to counterbalance the loss of Canadian cargoes via west coast ports. US east coast ports have initiated rate cutting and inland subsidies targeted at the traditional markets held by east coast Canadian ports and, coupled with the growth of doublestack, now threaten the Canadian east coast ports' traditional share of US midwest cargoes. The previous commentary underscores the problems faced by Vancouver in regaining Pacific cargoes lost to US west coast ports.

Canadian cargo diverted through US west coast ports now includes eastern Canadian cargoes from as far away as Nova Scotia that used to travel to the Far East by all water routes. Because the US *Shipping Act of 1984* facilitated the development of intermodal services, it has been projected that the current trend of LA/Long Beach taking market share from US east coast ports will continue, as eastern and midwest US shippers opt for the shorter transit times possible from landbridge than via the Panama Canal. Throughout a period of tremendous growth New York was challenged to maintain its prominence as the US's leading containerport; its higher labour costs, higher inland transport costs, less than convenient inland rail schedules and higher local container transport costs resulted in the loss of three-quarters of its market share to other US ports and only a slow growth in traffic. As US east coast ports lose business to their west coast competitors they are looking north to Canadian ports for new business, as improvements by Conrail and CP's D&H open up this market.

Containerports like New York and LA/Long Beach operate on a scale not known in Canada. (See Exhibit 4.) Canadian ports have benefitted from their ability to service American cargo needs more effectively but the sources of their competitive advantage are eroding with the increasing use of doublestack and the increasing tax burden in Canada, particularly in commodity taxes at the provincial level. In future Canadian ports will be hard pressed to maintain traffic levels in the coming decade at a critical volume level, one which is profitable for the facilities already built, without a well-developed strategy for improving port competitiveness. But what should that strategy look like? Neither the Canadian government nor Ports Canada has yet formulated a strategy.

External Affairs and International Trade Canada, along with the Canadian Ports and Harbours Association, Ports Canada, Transport Canada and the St. Lawrence Seaway Authority have developed a draft proposal for *An International Marketing Strategy for the Promotion of Canadian Port Services*. In this proposal they have identified a number of specific issues or sources of concern, as identified by either Canadian or foreign interests. The list includes:

- Goods and Services Tax (GST)
- Canadian corporate tax structure versus American
- Canadian fuel taxes versus American fuel taxes
- Canadian environmental issues and regulations
- labor union/management relations in the Canadian port industry
- Canadian coastal trade restrictions versus American
- Duty on foreign cruises in Canadian waters
- proposed formation of International Maritime Centers
- Canada-US Free Trade Agreement
- Canada-US-Mexico free trade talks and possible inclusion of transportation issues
- proposed Transport Canada cost recovery plans.<sup>7</sup>

## EXHIBIT 3

**Canadian and American Overseas Transshipped Traffic  
by Coast (1) 1985 - 1987  
(Thousands of Tonnes)**

	Canadian Cargo Via US Ports			US Cargo Via Canadian Ports			Net Traffic Balance (2)		
	1985	1986	1987	1985	1986	1987	1985	1986	1987
<b>East Coast</b>									
Exports	352.7	421.2	446.5	986.9	1362.8	1641.3	634.2	941.6	1194.8
Imports	218.5	N/A	N/A	1629.5	1521.6	2120.5	1411.0	N/A	N/A
<b>Total</b>	<b>571.2</b>	<b>N/A</b>	<b>N/A</b>	<b>2616.4</b>	<b>2884.4</b>	<b>3761.8</b>	<b>2045.2</b>	<b>N/A</b>	<b>N/A</b>
<b>West Coast</b>									
Exports	268.3	666.3	672.6	328.9	395.3	180.5	60.6	-271.0	-492.1
Imports	754.6	1051.3	783.4	132.3	102.6	105.1	-622.3	-948.7	-678.3
<b>Total</b>	<b>1022.9</b>	<b>1717.6</b>	<b>1456.0</b>	<b>461.2</b>	<b>497.9</b>	<b>285.6</b>	<b>-561.7</b>	<b>-1219.7</b>	<b>-1170.4</b>
<b>Total</b>									
Exports	621.1	1087.5	1119.2	1315.8	1758.1	1821.7	694.8	670.6	702.5
Imports	973.1	N/A	N/A	1761.8	1624.2	2225.6	788.7	N/A	N/A
<b>Total</b>	<b>1594.2</b>	<b>N/A</b>	<b>N/A</b>	<b>3077.6</b>	<b>3382.3</b>	<b>4047.3</b>	<b>1483.5</b>	<b>N/A</b>	<b>N/A</b>

Note: May not sum to totals due to rounding.

- 1) Coastal breakdown of American traffic via Canada is based on the US customs districts of clearance, whereas, for Canadian cargo via the US, the breakdown is based on the effective US ports where the cargo was handled.
- 2) Net traffic balance consists of US cargo minus Canadian cargo.
- 3) Canadian imports via the East Coast and total figures are not available for 1986 and 1987 Canadian cargo due to the exclusion of the Port of New York from the data set.

Source: R. Abbott, *Canadian Cargo Transshipped Through US Ports: Trends and Characteristics in 1987*, TP 9420-E, Transport Canada, Economic Research, July 1990, p. 20.

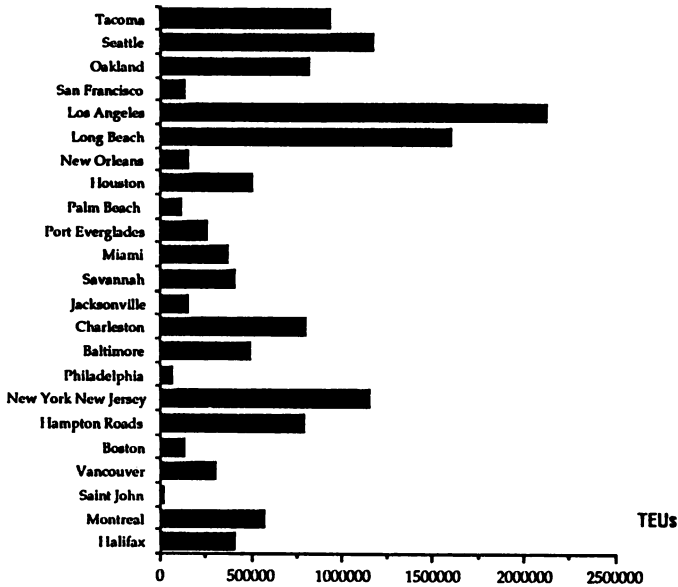
This paper has addressed some issues not on the above list and included some, like the state and local tax structures, which should be. A significant amount of research into many of these issues has already been done but mostly by American ports. The fiscal and regulatory research has been done but the impact of state support is not clearly defined. The increasing intensity of competition in the container trades signals that the window of opportunity to secure the competitiveness of Canadian ports is closing and therefore any further research to be undertaken must be completed soon. Action to ensure a level playing field is critical if Canadian ports are to benefit from the trade growth projected after the current recession is over.

## REFERENCES

- Abruzzese, L. "Truckers Battle to Keep Cargo," *The Journal of Commerce*, May 8, 1990, p. 10C.
- Ansary, H. Canada Ports Corporation, slide presentation: *Competitive Strategies for Canada's Transportation System*, 1989.
- Booz Allen & Hamilton Inc. "Strategic Shifts in World Liner Markets," Presentation: Halifax Port Days, September 10, 1990.
- Brennan, J. Temple Barker Sloane Inc., "Intermodalism in the 1990's" Presentation: Halifax Port Days 1989, September 18, 1989.

## EXHIBIT 4

## Canadian and US Containerport Traffic 1990



Source: *Container News*, August 1991, p. 10 and Canada Ports Corporation.

Brooks, M. "Ocean Carrier Selection Criteria in a New Environment," *The Logistics and Transportation Review*, Volume 26, Number 4, December 1990, p. 339-56.

Canadian National, *Annual Report 1990*. *Container News*, October 1990, p. 21.

*Container News*, August 1991, p. 10.

External Affairs and International Trade Canada (1991), *An International Marketing Strategy for the Promotion of Canadian Port Services*.

Grant, M. *International Tax Competitiveness of the Canadian Railway Industry*, The Conference Board of Canada, July 1990.

Grier, D.V. *U.S. Army Corps of Engineers Use of Foreign Trade Data in Deep-Draft Water Transportation Planning and Analysis*, Presentation to the Transportation Research Forum Annual Conference in Long Beach CA, October 1990.

Grimm, C.M. and K.G. Smith, "Impact of Deregulation on Railroad Strategies," *TRF Proceedings*, 1985, p. 547.

Halifax-Dartmouth Port Development Commission, *Diversion of Canada's Overseas Trade Over U.S. Ports: Countering the Threat*, December 1990, p. 6.

Hirst, N. "The Railroads Steam South," *Canadian Business*, February 1991, p. 47-54.

KPMG Peat Marwick. *Surface Freight Transportation: Alternatives Into the 21st Century*, November 1989, p. 7.

*Marine Log*, October 1990, p. 20.

Pander, V. *An Assessment of the Competitiveness of the Port of Halifax*, unpublished paper, Dalhousie University, April 1990.

Ray, A. *Operating Costs for a Typical Containership on Alternative North Atlantic Routes*, Ottawa: Canadian Transport Commission, WP-20-86-21, December 1986.

*The Journal of Commerce*, August 31, 1989, p. 1A.

*The Journal of Commerce*, December 29, 1989, p. 12B.

*The Journal of Commerce*, January 10, 1990, p. 1A and 8B.

*The Journal of Commerce*, March 13, 1990, p. 1A and 10A.

*The Journal of Commerce*, May 1, 1990, p. 8B.

*The Journal of Commerce*, August 27, 1990, p. 1A.

*The Journal of Commerce*, January 3 1991, p. 1B., and March 13, 1991, p. 1A.

*The Journal of Commerce*, January 25, 1991, p. 12B.

*The Journal of Commerce*, March 15, 1991, p. 2B.

*The Journal of Commerce*, March 20, 1991, p. 3B.

U.S. Department of Transportation. *Double Stack Container Systems: Implications for US Railroads and Ports*, June 1990.

U.S. Department of Transportation, Maritime Administration. *United States Port Development Expenditure Report (1946-1989)*, February 1991.

## ENDNOTES

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Note: An earlier version of this paper was presented to the Transportation Research Forum conference in New Orleans October 31-November 2, 1991. Since the paper was written, the Canada Ports Corporation has released its study, *Towards a Canadian Intermodal System: Recommendations for Change* presenting its strategy for Canadian container ports and the Canadian government has announced some changes in the taxation of railways would be forthcoming.

1. Economies of scale with a post-Panamax vessel have been estimated to be in the order of 12 percent. (*Container News*, October 1990, p. 21.)
2. Ansary's 1989 presentation was never publicly released although parts of it appear in the recently released study noted at the end of the paper.
3. When prices are viewed to be similar, price cannot be a determinant of choice. There is always a group of shippers for whom price is not a higher order choice criteria. These two factors tend to downplay the overall influence of price. (Brooks, 1990)
4. According to the St. Lawrence Economic Council as cited by *The Journal of Commerce*, March 15, 1991, p. B2.
5. N. Hirst (1991), February 1991, p. 52-3.
6. M. Grant (1990), p. 19.
7. External Affairs and International Trade Canada, p. 3.