



**MARINE TRANSPORTATION:
CONTAINERS AND TRADE**

**Emmanuel Preville
Economics Division**

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HIGHLIGHTS

- The movement of goods and people across Canada's borders, by air, truck, rail and sea, is receiving much attention given ongoing and heightened security concerns. This paper addresses the marine transportation of goods.
- Although marine transportation represents a small part of the transportation industry in terms of the value of goods moved (3.5% of trade with the United States), it represents a sizeable part in terms of tonnage and volume (nearly half of trade with the United States).
- Marine transportation increasingly relies on containers to move goods. They account for 6.9% of the total volume of shipments in Canada.
- The use of containers in marine transportation plays a major role in Canada's agri-food export sector, especially for pulse crops, meat and vegetables. About one third of the 1.1 million containers used to export goods in 2000 were for agri-food products.
- Container traffic is concentrated in Canada's main three ports: Vancouver, Montréal and Halifax. Those three ports handled 95.2% of all containerized cargo in 1999 and generated almost \$6.15 billion annually in economic activity.



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MARINE TRANSPORTATION: CONTAINERS AND TRADE

TRADE AND MARINE TRANSPORTATION

Commercial transportation has an important role in the Canadian economy. In 2001, the value of transportation services throughout Canada directly accounted for 4.1% of Gross Domestic Product (GDP). Truck and marine traffic accounted for 1.3% and 0.1%, respectively, of this total (see Table 1). Perhaps more important, however, many industries depend on transportation. Transportation-related final demand accounted for 14.9% of total expenditures in the economy in 2001.⁽¹⁾

Table 1 – Commercial Transportation as a Proportion of GDP, 2001		
<u>Industries</u>	<u>\$ Million (1997)</u>	<u>%GDP</u>
Air	4,205.2	0.4
Rail	4,901.1	0.5
Water	1,083.3	0.1
Truck	11,899.8	1.3
Other	11,886.6	1.8
Transportation	38,563.4*	4.1

Source: Transport Canada, *Transportation in Canada, 2001: Annual Report*.

* Includes urban transit systems and transportation.

Canada exported \$354.9 billion worth of goods in 1999. Most of these exports were to the United States and moved by truck and rail. Although marine transportation accounted for only 2.2% of the value of Canada's exports to the United States, it moved 71% of the value of our exports to other countries.

(1) Transport Canada, *Transportation in Canada, 2001: Annual Report*.

Canada imported \$215.4 billion worth of goods from the United States in 1999, mostly by road. Marine transportation accounted for only 1.3% of this amount. The value of Canada's imports from non-U.S. countries was \$104 billion, and 38% of these were moved by boat.

Table 2 – Canadian Trade with United States: Value, Volume and Mode, 1999						
	<u>Exports</u>	<u>Modal Share %</u>				
		Road	Rail	Marine	Air	Other*
\$ Billion	308.1	60.2	22.8	2.2	5.7	9.1
Million tonnes	307.5	24.0	19.0	16.3	0.2	40.6
	<u>Imports</u>	<u>Modal Share %</u>				
		Road	Rail	Marine	Air	Other*
\$ Billion	215.4	81.1	7.8	1.3	9.4	0.4
Million tonnes	106.2	49.2	13.6	33.4	0.9	2.8

Source: Transport Canada, *Transportation in Canada, 2000: Annual Report*.

* "Other" includes energy pipeline trade.

Table 3 – Canadian Trade With Non-U.S. Countries: Value, Volume and Mode, 1999						
	<u>Exports</u>	<u>Modal Share %</u>				
		Road	Rail	Marine	Air	Other*
\$ Billion	46.8	6.6	1.7	70.9	21.0	0
Million tonnes	182.3	1.7	0.3	97.7	0.3	0
	<u>Imports</u>	<u>Modal Share %</u>				
		Road	Rail	Marine	Air	Other*
\$ Billion	104.7	34.7	3.3	38.2	23.0	0.5
Million tonnes	69.6	9.1	1.3	83.5	1.3	4.8

Source: Transport Canada, *Transportation in Canada, 2000: Annual Report*.

* "Other" includes energy pipeline trade.

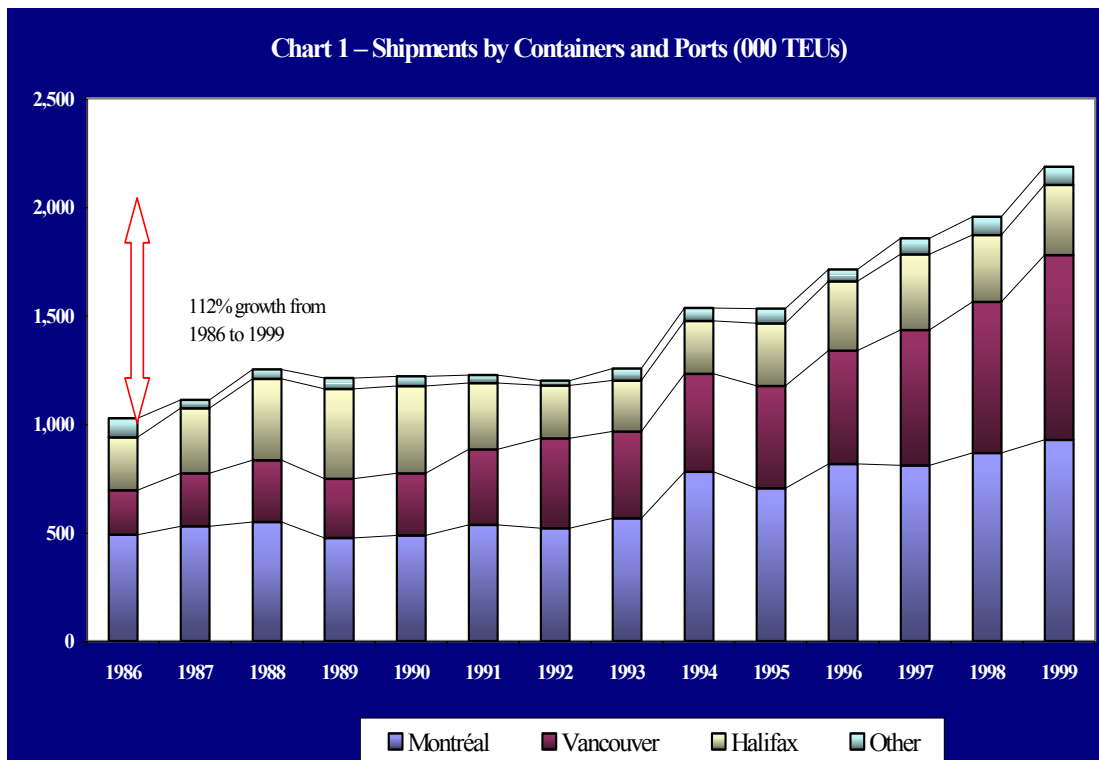
Although the value of goods moved by boat is relatively small, the importance of marine transportation becomes much more apparent when looked at from the perspective of volume or tonnage. In 1999, Canada shipped 307 million tonnes of goods to the United States and 182 million tonnes of goods elsewhere in the world. With regard to shipments to the United States, the tonnage moved by boat (16%) was comparable to the tonnage moved by train

(see Table 2). Furthermore, boat shipments to non-U.S. destinations accounted for almost 98% of the volume of goods exported (see Table 3).

On the import side, the volume of imports by boat from the United States was relatively high (33%), and imports from other countries to Canada mainly travelled by boat.

WHAT INDUSTRIES USE CONTAINERS?

Canadian ports handle 9% of the total number of TEUs⁽²⁾ handled in North America.⁽³⁾ For Canada, this was equivalent to 2 million potentially non-secure trucks entering the country through the nation's ports in 1999 (see Chart 1). Containers accounted for 6.9% of the total volume of shipments in Canada. Transport Canada expects that by 2005, containers will be used in the movements of 8% of the total volume.⁽⁴⁾



Source: Transport Canada.

- (2) Containers are commonly 8 feet by 8 feet by 20 feet, or 8 feet by 8 feet by 40 feet; they are measured in terms of the 20-foot container, known as a TEU (twenty-foot equivalent unit). Most ships can carry 6,000 to 8,000 TEU containers.
- (3) American Association of Port Authorities.
- (4) Transport Canada, "Commodity Flows by Sector – Canada – Marine," available on-line via the Transport Canada Web site at: <http://www.tc.gc.ca>.

General cargo (miscellaneous manufactured items, plastics, textiles, etc.) accounted for 98.9% of the containerized tonnage in 1999. Containers were used to transport 18.1% of general cargo (23.1 million tonnes). The largest single commodity carried in containers was machinery/equipment and miscellaneous cargo, accounting for 8.0 million tonnes and 34.3% of the total container freight.

In 2000, Canada used an estimated 1.1 million TEUs to export goods, about one third of which were agri-food products. The breakdown of agri-food product export containers is shown in Table 4. Within the industry, two sectors in particular – meat and fish; and fruits and vegetables – rely heavily on containers for transportation to foreign markets.

AGRI-FOOD EXPORTS MOVING THROUGH CANADIAN PORTS

Canada's major ports are vital gateways in the national transportation system. Their links to railway and road systems are essential for transporting both exported and imported goods, especially to and from other continents.

Table 5 offers an overview of port activity across the country. Canada's three leading container ports, Vancouver, Montréal/Contrecoeur and Halifax, handled 95.2% of all containerized cargo in 1999. Saint John also has container facilities and traffic but remains marginal in comparison to the ports previously mentioned.

Table 4 – Canadian Exports of Agri-Food Products by Containers and Port Share, 2000						
	<u>Vancouver</u>	<u>Share</u>	<u>Montréal</u>	<u>Share</u>	<u>Halifax</u>	<u>Share</u>
	Est. TEUs	%	Est. TEUs	%	Est. TEUs	%
Animal/Vegetable Oils	1,360	0.6	0		892	1.5
Barley	4,057	1.9	0		0	
Beverage and Tobacco	1,851	0.9	0		2,951	5.0
Cereals, Other	25,339	12.1	15,969	20.5	1,337	2.2
Crude Animals (Inedible)	8,358	4.0	0		0	
Dairy Products	8,459	4.0	1,342	1.7	1,650	2.8
Flaxseed	652	0.3	49	0.1	0	
Fodder and Feed	60,336	28.8	643	0.8	5,284	8.9
Fruits, Vegetables and Food Products	41,507	19.8	35,335	45.3	22,421	37.6
Meat and Fish	56,442	26.9	12,099	15.5	34,556	58.0
Wheat	1,416	0.7	391	0.5	121	0.2
Food, Miscellaneous	0		7,031	9.0	3,397	5.7
Seeds, Other	0		0		1,361	2.3
Corn	0		2,544	3.3	0	
Sunflower	0		2,574	3.3	0	
Total Food	209,777	100.0	77,977	100.0	59,572	100.0
Total All Containers	554,113		332,212		186,862	
% Food to Total Containers	38%		23%		32%	

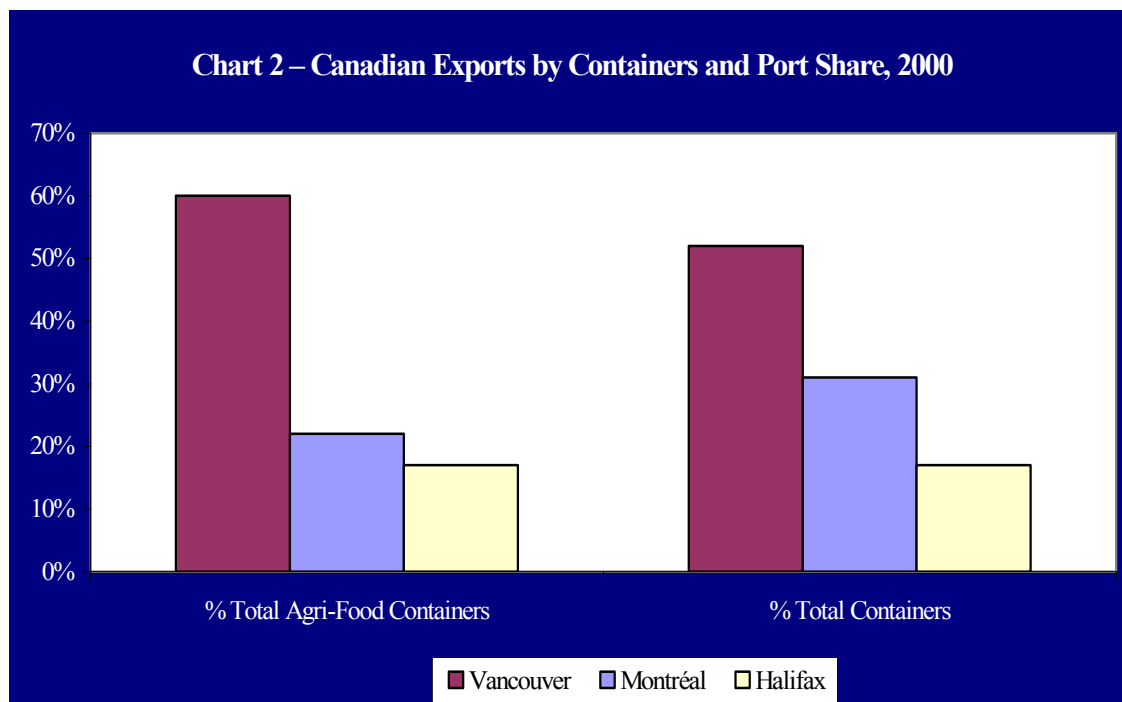
Source: S. Thompson and D. Spearing, "Terrorism and Containers: The Impact of Security Measures on Container Traffic," 2002.

TEUs were estimated for pulses and cereals using 12 tonnes as a weight, and 7 tonnes for meat.

Table 5 – Tonnage Handled at Canadian Ports, 1999 (000s tonnes)				
Ports	Loaded	Unloaded	Total Handled	Container Activity
Vancouver	63,306.7	6,499.3	69,806.0	x
Sept-Îles	19,532.0	1,523.1	21,055.1	
Montréal	7,296.7	13,073.5	20,370.2	x
Saint John	8,866.0	10,824.2	19,690.2	x
Québec	5,287.4	11,000.0	16,287.4	
Halifax	7,395.8	6,854.3	14,250.1	x
Hamilton	996.8	10,442.2	11,439.0	
Thunder Bay	8,488.9	417.0	8,905.9	
Windsor	2,161.6	3,275.1	5,436.7	
Others	19,051.2	12,614.9	31,666.1	

Source: Statistics Canada, *Shipping in Canada 1999*.

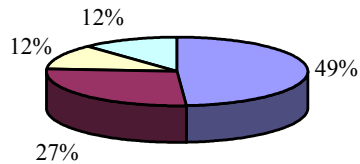
The export of agri-food products, particularly fruits and vegetables, pulse crops (peas, lentils, etc.), fodder and feed, and meat and fish products, by containers to U.S. and non-U.S. destinations is a major part of the marine transportation industry. Most agri-food products transit through the Port of Vancouver (see Chart 2).



Source: Ports of Vancouver, Montréal and Halifax.

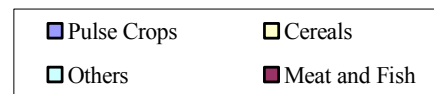
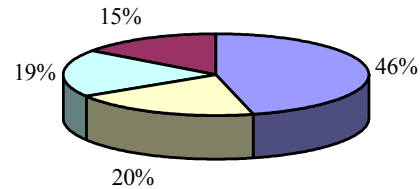
Charts 3 to 5 show the percentages of the major agri-food commodities exported by containers – pulse crops; meat and fish; cereals; and other products – for Vancouver, Montréal and Halifax.

**Chart 3 – Port of Vancouver
Exports of Agri-Food Products by
Containers, 2000**



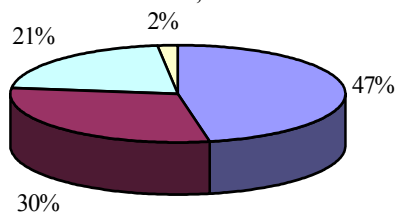
Source: Port of Vancouver.

**Chart 4 – Port of Montréal
Exports of Agri-Food Products by
Containers, 2000**



Source: Port of Montréal.

**Chart 5 – Port of Halifax
Exports of Agri-Food Products by
Containers, 2000**



Source: Port of Halifax.

ECONOMIC IMPACT OF CANADA'S MAIN PORTS

Canada's major ports are also important in sustaining employment, generating local economic activities, providing local people with access to essential resupply services, and facilitating business or pleasure travel.

- The Port of Vancouver generates 27,500 direct jobs and 18,500 indirect jobs, and almost \$3.5 billion annually in economic activity.
- The Port of Montréal generates some 17,600 direct and indirect jobs, and almost \$2 billion annually in economic activity.
- The Port of Halifax generates over 9,000 direct and indirect jobs and approximately \$650 million annually in economic activity.