Going the Distance:
Trends in the Canadian Trucking Industry since 2004

Sagal Searag, Analyst
Transportation Division, Statistics Canada

Introduction

Have you ever given a thought to how fresh produce in your local grocery store arrives daily? From the foods we eat, to the clothes we wear and the homes we live in, there is no area in our lives that has not been touched by the goods trucked to our local stores. Trucking is a key element in the functioning of both local economies and international trade in North America, and is at the heart of road congestion and environmental issues. In 2009, the trucking industry earned $37 billion in operating revenue[1] and was the number two employment of choice for men as indicated on the 2006 Census.[2]

In the early 1970's, Statistics Canada began measuring the activities of the trucking industry. Redesigned several times in the late 1980's, and after gaining input from respondents and stakeholders, Statistics Canada introduced the latest Trucking Commodity Origin and Destination (TCOD) survey in 2004. (For more information see Appendix I.) This analysis will examine the key trends in the trucking industry from 2004 to 2009, the impact of the recent recession and other factors through an examination of TCOD data.

Canadian economy from 2004 to 2009: hitting a speed bump

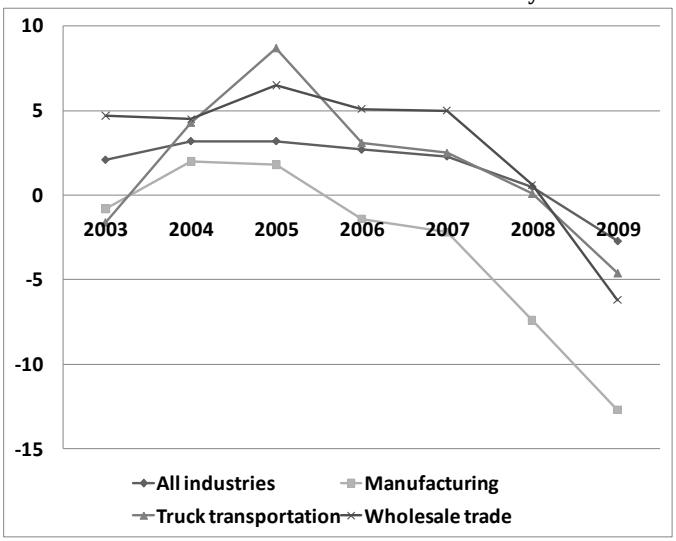
Considered the 9th largest economy[3] in the world, there was positive growth in the Canadian economy, as measured by Gross Domestic Product (GDP) until 2008. With the bursting of the housing market bubble in the United States in 2008, financial markets globally were affected. Although Canadian financial institutions and citizens fared better than their American counterparts due to their lower levels of

[1] Quarterly Trucking Survey, Statistics Canada, 2009
[2] Census of Population, Statistics Canada, 2006
[3] International Monetary Fund, World Economic Outlook Database, 2009

borrowing, the contraction of the American economy was reflected in the Canadian economy. As illustrated in Figure 1, GDP growth in 2008 barely registered at 0.5%, and was considerably lower than the 2007 increase of 2.3%. In 2009, the economy contracted by 2.7%. Most sectors, including the trucking industry, followed a similar pattern to that of the economy as a whole.

The impact of the recession on the manufacturing industry was even more severe. Struggling with the negative effect of a high Canadian dollar on exports, manufacturing was the industry hit hardest by the recession. Manufacturing GDP decreased by 12.7% in 2009, an amount greater than the declines over the three previous years combined. Over half the industries in the manufacturing sector posted decreases in sales in 2008, most notably motor vehicle manufacturers, whose sales shrank by 22%.[4]

Figure 1: Year-to-year percent changes in GDP for various industries in the Canadian economy



Source: CANSIM table 379-0027, Statistics Canada

[4]Kowaluk, Russell and Rob Larmour. "Manufacturing: The Year 2008 in Review" *Analysis in Brief* . Statistics Canada. April 2009

Trucking from 2004 to 2009

Between 2004 and 2009, trucking comprised 42% of the GDP generated from all transportation industries in Canada[5]. On an average annual basis, 60 million shipments delivered 580 million tonnes of merchandise within Canada, the United States and Mexico.

From 2004 to 2007, the trucking industry expanded. The number of shipments hauled, tonnage carried and revenue earned increased for companies in this sector. Weight per shipment averaged 9,514 kilograms while revenue per shipment was $456. In 2008, the recession took hold and its impact was immediately apparent.

In 2008 and 2009, shipments, tonnage and revenue all declined. In contrast, weight per shipment increased over these years, likely as participants in the industry searched for ways to reduce costs. Both revenue per shipment and revenue per tonne-kilometre peaked in 2008 before dropping in 2009.

Table 1: Comparison of trucking indicators over time

	2005	2006	2007	2008	2009
Shipments (million)	62	62	64	60	54
Tonnes (million)	587	598	604	588	543
Tonne-km (million)	234	225	225	224	213
Weight/shipment (kg)	9,534	9,695	9,468	9,732	10,037
Distance/shipment (km)	599	618	604	584	588
Revenue/shipment ($)	455	464	486	512	486
Revenue/tonne-km (¢)	12.0	12.7	13.8	13.8	12.4

Source: Trucking Commodity Origin and Destination Survey, Statistics Canada

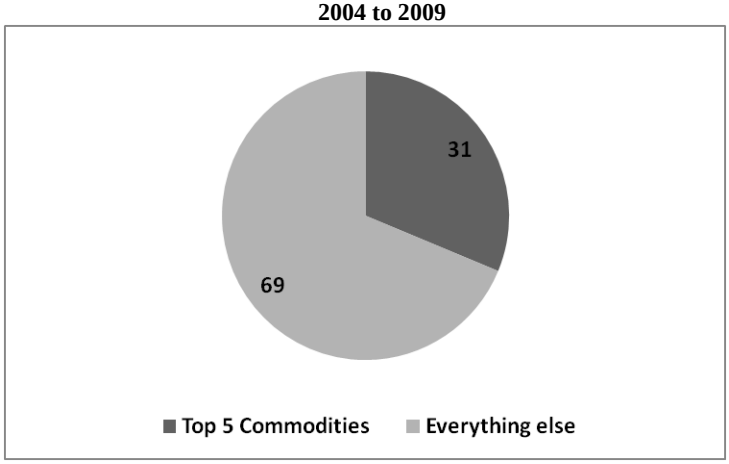
[5] CANSIM Table 379-0027, Seasonally adjusted at annual rates, chained 2002 dollars, Statistics Canada

From Coast to Coast

Most of the freight hauled by Canadian trucking companies had both their origin and their destination within the same province or territory. From 2004 to 2009, 73% of the tonnage transported remained in the same province. Shipments to other provinces represented 12% of tonnage while the remaining 15% was carried across the United States border.

The leading commodities hauled were general freight, gravel and crushed stone, crude petroleum, gasoline, and flat rolled products of iron or steel. During the last six years, these goods have always appeared in the top 7 commodities shipped.

Figure 2: Average share of the top five commodities shipped, 2004 to 2009



Source: Trucking Commodity Origin and Destination Survey, Statistics Canada

Wood chips or particles, general freight, and lumber were the leading commodities hauled by weight in British Columbia. Over the past six year, truckers moved, on average, 9.0 million tonnes of wood chips and 6.4 million tonnes of general freight each year.

In Ontario, the top commodity hauled was gravel and crushed stone which averaged 29 million tonnes annually. In Alberta, the industry moved an average of 16 million tonnes of crude petroleum per year. In some provinces, the top commodity was related to their niche markets. For example, in Prince Edward Island, frozen vegetables, including french fries, was the top good hauled over the six-year period.

The top origin-destination pair for movements between provinces was Quebec-Ontario. An average of 26 million tonnes of goods a year moved between these two provinces, with general freight the top commodity for all years.

In the city

In 2009, about one-quarter of all domestic tonnage hauled had both its origin and destination within one of the following five major urban centres; Montréal, Toronto, Calgary, Edmonton and Vancouver[6]. With nearly 80% of Canada's population living in major cities[7], much of the tonnage hauled in the country travelled between or within urban centres.

Toronto-Montreal was a busy corridor during this period. In 2009 alone, 8.5 million tonnes of goods moved between these two cities. In fact, 12% of all freight that moved within Canada originated in Toronto.

[6] All references to cities are actually the Census Metropolitan Areas (CMA) as defined by Statistics Canada

[7] Martel, Laurent and Eric Caron-Malenfant. Portrait of the Canadian Population in 2006. *2006 Analysis Series.* Statistics Canada

Table 2: Weight of goods hauled between and within Toronto and Montreal (million tonnes)

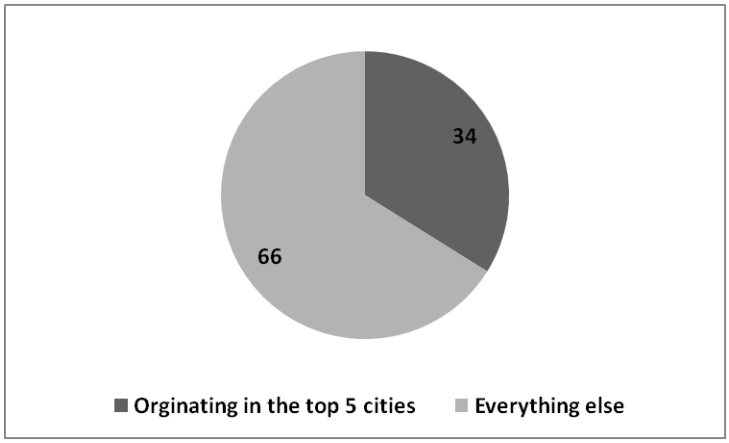
	2004	2005	2006	2007	2008	2009
Toronto-Montreal	3.1	4.7	4.1	3.2	4.0	5.5
Montreal-Toronto	2.7	3.5	3.3	2.8	3.1	3.0
Within Toronto	32.1	32.0	33.5	33.8	28.1	39.7
Within Montreal	14.9	20.5	18.6	19.5	13.7	15.5

Source: Trucking Commodity Origin and Destination Survey, Statistics Canada

From 2004 to 2009, general freight was the top commodity hauled within Toronto, Montréal and Vancouver. The principal commodity for Calgary and Edmonton was gravel and crushed stone.

In 2009, approximately 38 million tonnes of goods originating in Toronto were hauled to various locations across Canada. General freight, and gravel and crushed stone were the top commodities hauled within Toronto.

Figure 3: Average share of tonnage originating in the top 5 cities, 2004 to 2009

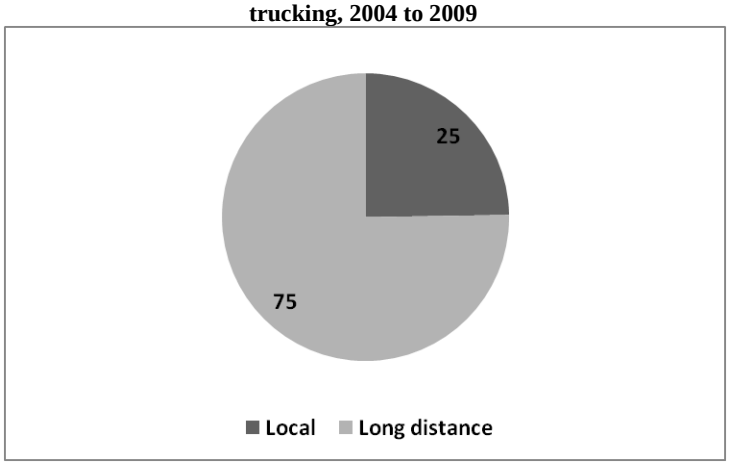


Source: Trucking Commodity Origin and Destination Survey, Statistics Canada

Trucking near and far

With a country that spans over 9 million square kilometres in area[8], trucks in Canada traverse long distances and varying terrain to deliver shipments across the nation. From 2004 to 2009, the majority of shipments hauled were long distance[9] and had an average weight of 8,737 kg. Local shipments, those transported 24 kilometres or less, comprised only a quarter of all freight transported but weighed 60% more than long distance shipments. Shipments were hauled, on average, 11 km locally and 722 km long distance.

Figure 4: Average share of tonnage transported, local and long distance trucking, 2004 to 2009



Source: Trucking Commodity Origin and Destination Survey, Statistics Canada

In 2009, gravel and crushed stone was the top commodity shipped locally with an average weight per shipment of 31,155 kg. This was over twice the average weight for all commodities shipped locally. However, these shipments moved only 6 km on average, considerably

[8] Canada's area is the second largest in the world after Russia. Atlas of Canada, http://atlas.nrcan.gc.ca/auth/english/learningresources/facts/supergeneral.html, Natural Resources Canada

[9] For analytical purposes, long distance shipments are those of distance 25 kilometres or more. However, it is possible to obtain data for varying distances.

less than the average local trip, perhaps as a result of their heavier weight.

Beyond borders

Road transportation dominates trade between Canada and the United States. The United States is our largest trading partner with 55% of the value of imports and 80% of our exports moving between Canada and its closest neighbour.[10] Canadian trucking companies hauled an annual average of 88 million tonnes of freight across the Canada-United States border from 2004 to 2009. About half of these shipments travelled southbound into the United States each year and accounted for an aggregate weight of 50 million tonnes.

From 2004 to 2009, the top 5 commodities transported southbound were general freight, other motor vehicle parts and accessories, flat-rolled products of iron or steel, wood chips or particles, and uncoated paper. These commodities constituted 35% of the tonnage hauled over the border.

Table 3: Number of trucks and shares of freight crossing the Canada-US border

	2004	2005	2006	2007	2008	2009
Trucks	13,628	13,450	13,116	12,763	11,667	9,907
Canada-US	55%	55%	56%	56%	56%	57%
US-Canada	45%	45%	44%	44%	44%	43%

Source: Number of trucks – CANSIM table 427-0002, Statistics Canada. Shares of freight – Trucking Commodity Origin and Destination Survey, Statistics Canada

Over one-quarter of the freight headed southbound originated in Ontario and was headed for the one of the neighbouring states of Michigan, New York, Ohio and Pennsylvania.

On average, 12% of the weight of all goods moving back and forth between Canada and the United States moved between Ontario and

[10] Canadian international merchandise trade, CANSIM table 228-0003, Customs basis, Statistics Canada

Michigan. Other parts for motor vehicles was the top commodity hauled between this origin-destination pair, averaging 2.8 million tonnes annually between 2004 and 2008. In 2009, this movement dropped to 1.2 million tonnes, aligning with the slowdown in the manufacturing sector during this period.

Internationally, Ontario was also the top importing and exporting province. The leading commodity transported into and out of Ontario was general freight, which averaged 9.4 million tonnes annually.

Dangerous goods[11]

From 2004 to 2009 dangerous goods[12] accounted for 16% of the freight hauled within Canada. Crude petroleum was the leading commodity, followed by gasoline and fuel oils. Together these three commodities accounted for over two-thirds of the total weight of dangerous goods transported. Shipments of these three commodities originating in Alberta, Quebec, Saskatchewan and Ontario accounted for 85% of the total weight of dangerous goods transported.

Summary

The importance of the trucking industry to the Canadian economy cannot be overstated; 543 million tonnes of goods were transported in 2009 alone.

Provincially, Ontario leads in terms of the amount of freight hauled within the province, the amount shipped elsewhere in Canada and movements across the United States border. General freight and gravel and crushed stone were the leading commodities hauled with gasoline being the top dangerous good.

[11] The estimates for dangerous goods are a work in progress and subject to change.
[12] As defined by Transport Canada, dangerous goods includes items such as explosives, gases, flammable liquids, flammable solids, oxidizing substances and organic peroxides, poisonous (toxic) and infectious substances, radioactive materials and corrosives.

In terms of cities, more trade took place in Toronto than any other city in Canada. On average, 70 million tonnes of freight was shipped from Toronto, from 2004 to 2009, to other destinations within and outside of Canada.

Internationally, the border state of Michigan was the leading origin and destination for goods travelling between Canada and the United States with other motor vehicle parts being the principal commodity transported.

Although the recession did depress trucking activity in 2009, the industry has proven to be too vital to the Canadian economy to be down for long. More recent information indicates that the revenue earned by the trucking industry improved 10% and 14%,[13] respectively, in the first two quarters of 2010 compared to the previous year.

Note

I would like to thank Jan Patenaude, Ed Hamilton and Gord Baldwin of Statistics Canada for their valuable contributions to the analysis as this paper evolved. I retain all responsibility for any remaining errors.

[13] Quarterly Trucking Survey, Statistics Canada, 2010

Appendix I

Trucking Commodity Origin and Destination Survey

The For-hire Trucking Origin and Destination survey (TOD) was first developed in 1970. TOD was created to measure the commodity movements and outputs of the Canadian trucking industry. This survey produced annual estimates that included total tonnage transported by commodity type and revenue by origin and destination of shipments.

The For-hire Trucking Origin and Destination survey was redesigned and replaced with the Trucking Commodity Origin and Destination survey (TCOD) in 2004. The scope of the survey was expanded to include local shipments of long distance carriers and all shipments of local carriers. The sample of shipments was substantially increased primarily through expanded electronic data collection.

The new survey design allows for provincial and territorial origin and destination data, rather than the regional data that was provided in the past. As well, information about shipments within census metropolitan areas can now be provided.

TCOD statistics are used by a variety of groups. From trucking associations to all levels of government, these groups use TCOD data to determine the impact of the industry on the Canadian economy. Planning boards also utilize these statistics to help determine future highway infrastructure needs by examining trends in highway traffic volume.

Participation in this survey is mandatory. Data are collected directly from survey respondents through three collection methods, electronic data reporting, profiles via computer-assisted telephone interviews (CATI), and on-site visits.

For the electronic data reporting (EDR) method, a small number of companies in the sample send their data electronically. All of their data are processed (compared to the 10% sample of their data that

was utilized in the previous survey) due to fully automated coding and imputation systems.

For companies that reported less than 50 origin-destination-commodity combinations in the previous year, the data are collected by telephone using a CATI application. This method is used to a greater extent in the redesigned TCOD survey. Instead of visiting the company to collect data, the interviewer will collect, through a CATI interview, information about each "typical shipment" and note the number of each "typical shipment" that was made by the company during the reference period.

On-site visits are utilized when neither the EDR nor the profile method can be used for a given company. Although reduced in number due to the redesign, on-site visits still remain the most frequent mode of collection in the survey. Statistics Canada interviewers visit each company, select a systematic sample of shipping documents, select a sample of shipments on each document and finally transcribe the data from the documents onto laptop computers.