

“Truck Use 2002—A Canada-United States Comparison”

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Introduction

In both Canada and the United States, the trucking mode has shown incredible growth. But what are the differences and similarities between the truck fleets and their use in Canada and the United States?ⁱ¹ The basis of this comparison will be the annual Statistics Canada Canadian Vehicle Survey (CVS) 2002 and the quinquennial US Census Bureau Vehicle Inventory and Use Survey (VIUS) 2002. Among the topics covered are the sizes of the respective fleets, how far they travel, the age of the fleets, distance travelled by fuel type, the carriage of dangerous goods and running empty.

As the coverage of the two surveys differ somewhat, this paper will be limited to those trucks covered by the weight categorization used in the CVS. The CVS data are classified for:

ⁱ With the release of the United States 2002 Vehicle Inventory and Use Survey (VIUS) data in December 2004, it is now possible to compare the situation in Canada with that in the United States. When the VIUS data for 1997 were released, there was no comparable Canadian survey. In 1999, Statistics Canada started the Canadian Vehicle Survey (CVS) with funding from Transport Canada. As a result, there now exist databases that enable a comparison of the respective national trucking fleets in Canada and the United States.

- trucks 4.5 metric tonnes to under 15 metric tonnes, which will be referred to in this paper as “medium-duty trucks”;
- trucks 15 metric tonnes or more, which will be referred to in this paper as “heavy-duty trucks”.²

VIUS data are classified in imperial units (pounds) in fifteen different range groups. Those closest to the Canadian equivalents would be:

- trucks 10,001 lbs (4.5 metric tonnes = 9,921 lbs) to 33,000 lbs (15 metric tonnes = 33,070 lbs) [this makes one grouping of five VIUS weight groups] which are referred to in this paper as “medium-duty trucks”;
- trucks 33,001 lbs or more [this makes one grouping of six VIUS weight groups] which are referred to in this paper as “heavy-duty trucks”.³

Note that the category in VIUS called “light” will not be included in the data in this comparative study as they include vehicles lighter than the 4.5 metric tonne threshold used in the CVS.

How Many Trucks are There?

Not surprisingly given the respective populations and economies, the fleets of trucks in the United States are much larger than those in Canada. In Table 1, it can be seen that there are slightly more than 10 medium-duty trucks in the United States for every one in Canada. The ratio is 8 to 1 for the heavy-duty trucks. The proportion of medium-duty to heavy-duty trucks is slightly larger in the United States than in Canada.

**Table 1 – Numbers of Trucks, 4.5 Metric Tonnes
and Heavier, 2002**

	Canada	%	United States	%
Medium-duty trucks	315,424	54.0	3,261,200	60.2
Heavy-duty trucks	268,411	46.0	2,154,100	39.8
Total	583,835		5,415,300	

Source: Statistics Canada, Canadian Vehicle Survey—Annual 2002, page 26; US Census Bureau, Vehicle Inventory and Use Survey, United States 2002, page 14

How Far Do They Travel?

While we have already seen that the medium-duty truck fleet is larger than the heavy-duty truck fleet in both countries, the heavy-duty trucks, primarily used for inter-city trucking are those that generate the larger kilometres driven. In Canada, the heavy-duty truck fleet accounted for 77% of the 23 606.9 million kilometres driven by trucks in 2002 (see Table 2). In the United States, the heavy-duty trucks accounted for 69.9% of the 234 352.2 million kilometres driven.

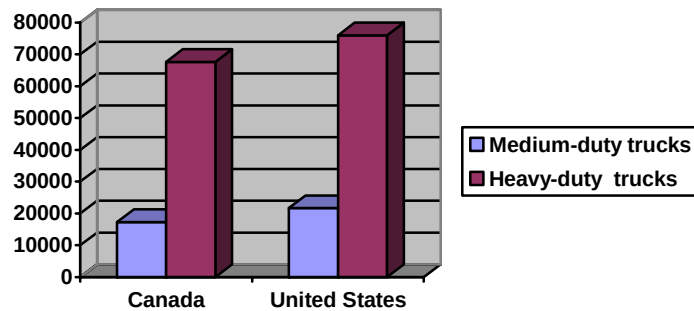
Table 2 – Vehicle-Kilometres ('000 000) Travelled, 2002

	Canada	%	United States	%
Medium-duty trucks	5 439.9	23.0	70 594.7	30.1
Heavy-duty trucks	18 167.0	77.0	163 757.5	69.9
Total	23 606.9		234 352.2	

Source: Statistics Canada, Canadian Vehicle Survey—Annual 2002, page 30; US Census Bureau, Vehicle Inventory and Use Survey, United States 2002, page 14

That the heavy-duty trucks, used more for the long-haul market, are driven farther is very apparent in Chart 1. This shows that the average kilometres driven by medium-duty trucks were 17.2 thousand kilometres in Canada. The heavy-duty trucks averaged 67.7 thousand kilometres driven. This same trend found in the United States where the average distances driven by both medium-duty trucks (21.6 thousand kilometres) and heavy-duty trucks (76.0 thousand kilometres) were greater than the averages in Canada.

Chart 1 – Average Kilometres per Truck, 2002



Source: Statistics Canada, Canadian Vehicle Survey—Annual 2002, page 30; US Census Bureau, Vehicle Inventory and Use Survey, United States 2002, page 14

Age of the Fleet

The age profile of the truck fleets in the two countries is very similar. In 2002, approximately one-fifth of the fleet were model years 2000-2003. Another fifth were from model years 1997-1999. One-fifth were from model years 1993-1996 and the remainder (45% in Canada and 43% in the United States) were from model years earlier than 1993 (see Table 3).

**Table 3 – Percentage of Trucks, 4.5 Metric Tonnes and Heavier,
by Model Year, 2002**

Model Year	Canada %	United States %
2000 to 2003	17.5	19.2
1997-1999	19.9	19.7
1993-1996	17.4	18.0
Earlier than 1993	45.2	43.1

Source: Statistics Canada, Canadian Vehicle Survey—Annual 2002, page 27; US Census Bureau, Vehicle Inventory and Use Survey, United States 2002, Table 4, page 38

Distance Travelled by Fuel Type

If one looks at the kilometres driven by fuel type, not surprisingly, diesel is the clear leader in both countries (see Table 4). In both Canada and the United States, 90% or more of the truck-kilometres are performed using diesel as the fuel type with Canada slightly higher at 94.2% to the United States' 90%. The bulk of the remainder of the kilometres are performed using gasoline. Other sources (natural gas, propane, alcohol fuels, electricity and other) are barely visible in 2002.

Table 4 – Percentage of Truck-Kilometres by Type of Fuel, 2002

Fuel Type	Canada %	United States %
Gasoline	5.0	9.6
Diesel	94.2	90.0
Other	0.8	0.4
Total	100.0	100.0

Source: Statistics Canada, Canadian Vehicle Survey—Annual 2002, page 36, includes trucks 4.5 metric tonnes to under 15 metric tonnes and trucks 15 metric tonnes or more; US Census Bureau, Vehicle Inventory and Use Survey, United States 2002, Table 6, page 50, includes medium, light-heavy and heavy-heavy. The medium class starts at 10,001 pounds approximately 4.536 metric tonnes or slightly heavier than the CVS cut-off.

Carriage of Dangerous Goods

This variable was not that well reported in the Canadian Vehicle Survey.⁴ Medium-duty trucks reported driving 328.3 million kilometres carrying dangerous goods in 2002. Heavy-duty trucks reported driving 1 543.2 million kilometres. To put this in perspective, this meant about 6% of the vehicle-kilometres for medium-duty trucks and 8.6% of the vehicle-kilometres for heavy-duty trucks were reported to be carrying dangerous goods.⁵

The U.S. Vehicle Inventory and Use Survey measured hazardous materials carried. Excluding pickups, minivans, other light vans and sport utilities (which are not included in the CVS data) trucks reported carrying hazardous materials for 11 907.2 million truck-kilometres, approximately 5.1% of the total truck-kilometres driven.⁶

Running Empty/Deadheading

While trucks are very visible on our roadways⁷ how often are they running empty on their way to pick up a load or after dropping off a load? The U.S. Vehicle Inventory and Use Survey measured distance driven empty. Excluding pickups, minivans, other light vans and sport utilities (which are not included in the CVS data) trucks reported driving empty for 46 634.1 million truck-kilometres, approximately 20% of the total truck-kilometres.⁸ The figure in Canada was smaller with 3 382.5 million truck-kilometres reported which was 14% of the total truck-kilometres driven.⁹

Conclusion

Based on a comparison of the year 2002 in Canada and the United States, there were similarities in the proportion of medium to heavy-duty trucks, proportional use (based on distance) of medium to heavy-duty trucks, age of fleets and fuel types used. Where the fleets differed was in a greater average distance driven in the United States, slightly higher carriage of dangerous goods in Canada and higher deadheading or running empty in the United States. Should the United States continue the Vehicle Inventory and Use Survey, a second year of comparison would help indicate if these similarities and differences are of a longer lasting nature.

Note

The views and opinions expressed in this paper are those of the authors and do not necessarily reflect those of Statistics Canada. I would like to thank Marcelle Dion, Ed Hamilton, Wendy Christoff and Lisa Di Pi  tro of Statistics Canada and Terry Ganton of Transport Canada for their valuable comments, corrections and criticisms while retaining all responsibility for any remaining errors.

Endnotes

¹ This might also be the last comparison possible for these two surveys. As this paper is being written, the proposed budget before the U.S. Congress has dropped funding for the VIUS 2007 survey.

² Statistics Canada, Canadian Vehicle Survey, Annual 2002, catalogue no. 53-223-XIE, page 9. The table below shows the relationship between the weight groupings used.

VIUS weight groupings (lbs)	CVS weight groupings
less than 6,001	
6,001-8,500	
8,501-10,000	
10,001-14,000	4.5 metric tonnes (9,921 pounds)-15
14,001-16,001	metric tonnes
16,001-19,500	(33,070 pounds)
19,501-26,000	
26,001-33,000	
33,001-40,000	15 metric tonnes
40,001-50,000	(33,070 pounds) or
50,001-60,000	more
60,001-100,000	
100,001-130,000	
130,001 or more	

³ U.S. Census Bureau, 2002 Economic Census, Vehicle Inventory and Use Survey, United States 2002, page 14

⁴ For medium-duty trucks reporting that they carried dangerous good the Quality Indicator had a coefficient of variation equivalent in the range of 20% to 35%. For heavy-duty trucks the coefficient of

variation equivalent was in the range of 10% to 15%. This takes into account the CV and the relative imputation rate. See Canadian Vehicle Survey Annual 2002, section 5.4.4, page 18.

⁵ Statistics Canada, Canadian Vehicle Survey Annual 2002, page 46

⁶ U.S. Census Bureau, Vehicle Inventory and Use Survey, United States 2002, Table 8, page 58

⁷ See Gord Baldwin, “Too Many Trucks on the Road?”, Statistics Canada, catalogue no. 11-621-MWE2005028, May 2005

⁸ Tabulation from VIUS CD-ROM product supplied by John P. Miller, US Census Bureau to Gord Baldwin via e-mail February 6, 2006.

⁹ Statistics Canada, Canadian Vehicle Survey, Annual 2002, page 56