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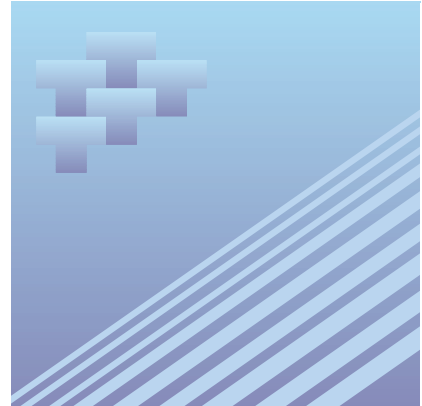
Research Paper

Driving Characteristics of the Young and Aging Population

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This paper represents the views of the author and does not necessarily reflect the opinions of Statistics Canada.



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Introduction

Many jurisdictions that regulate road traffic in Canada differentiate drivers by age categories. In particular, two groups, the young driver and the aging driver, are frequently required to submit to extra training and/or testing. Until recently, the only statistics available in Canada were of an ad hoc nature collected by individual jurisdictions or by household surveys. The current state of such statistics was examined in an extensive literature review that was conducted as part of this study. The review examined different sources of information relating to driving characteristics, provincial safety reports, U.S. safety administrations as well as other international data sources. A summary of the literature reviews has not been included but can be made available on request.

In 1999, the Canadian Vehicle Survey, sponsored by Transport Canada, was introduced by Statistics Canada to measure and describe road vehicle use in Canada. The Canadian Vehicle Survey provides quarterly and annual estimates of the amount of road travel, broken down by type of vehicle and variables such as age and sex of driver, time of day and season. The survey includes small passenger vehicles¹ (such as cars, vans and pick-ups), buses and trucks, but this paper will examine only the statistics that pertain to small passenger vehicles.

¹ Vehicles with gross vehicle weights of less than 4,500 kilograms and not used as a bus.

This paper used the Canadian Vehicle Survey data for reference year 2000 to explain road use characteristics of the young and the aging driver groups on a national basis. The analysis examined differences between the two age groups of interest and the remainder of the population. The driver groups are specifically: 24 years and under, 25 to 54 years, and 55 years and over. The focus of the study was on when and why drivers choose to make their trips and how the driving population compared to the population as a whole. The driver characteristics were compared to Canadian Motor Vehicle Traffic Collision Statistics published by Transport Canada as a means of putting driving exposure into perspective. Detailed collision statistics and special tabulations are currently available up to 1999. This paper may be updated at a later date to include 2000 collision statistics. A list of all data sources is in Appendix A.

Comparative Analysis of Young and Aging Drivers

All data on distance driven were derived from the Canadian Vehicle Survey conducted by the Transportation Division of Statistics Canada. Currently, the only complete year of information is for the reference year 2000. Data are only presented for light vehicles (vehicles with gross vehicle weights below 4,500 kilograms).

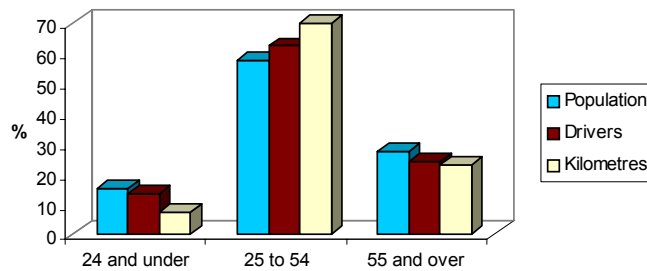
There were a total of just over 281 billion vehicle-kilometres driven on Canada's roads by light vehicles, during 2000.² These vehicles drove an average of 17 thousand kilometres per year.

Canada's total population has steadily increased over the past ten years at a rate of almost 1% annually, reaching over 30.8 million in 2000. The population 16 years and older has been experiencing higher growth averaging 1.3% increases since 1991. This population group (persons eligible to drive) has represented between 78 – 80% of Canada's total population since 1991.³

² A vehicle-kilometre is a unit used to measure the distance traveled by a licensed vehicle on a road.

There were a total of 20.6 million licensed drivers in Canada in 2000, approximately 67% of the total population.⁴

Chart 1: Percentage of Population, Licensed Drivers and Kilometres Driven



Population and drivers followed a more similar pattern than kilometres driven

The total population and number of drivers aged 55 and over was almost double that of those aged 16 to 24 years, yet the older age group drove over three times the distance of younger drivers. The older age group made up 27% of the total population 16 years and older, while persons aged 16 to 24 accounted for 15%.

³ Population statistics derived from Estimates of Population by Marital Status, Age and Sex for Canada, the Provinces and Territories, CANSIM II Table 051-0010, Statistics Canada.

⁴ Number of Licensed Drivers by Gender and by Age, Canadian Motor Vehicle Traffic Collision Statistics, 2000, Transport Canada.

Similarly for licence data, older drivers had almost double the share of licences (24%) compared to younger drivers who accounted for 13% of the total licences. In contrast, persons aged 55 and over drove almost 23% of the total 281 billion kilometres driven as opposed to the younger age group who accounted for only 7% of the total kilometres.

Males dominated every driver age group

With the exception of the population distribution of the 55 and over age group, males dominated in every age group for licensed drivers, kilometres driven and collisions. The highest proportion of male drivers within an age group was in the older group, where there were a significantly lower number of female drivers. When it came to driver licences, this age group favoured male drivers at 56%, the single highest percentage in any of the three groups for drivers. This, in spite of the fact that females aged 55 and over represented 55% of the group's total population.

Collision statistics compared between age groups followed similar patterns to that of licence data. All age groups were male dominated with the higher percentage split in the older age category. Almost 59% of drivers involved in collisions in the older age group were males. Again, this was the highest percentage of all three age groups.

Over the past ten years, there has been an average of 156 thousand collisions each year on Canada's roads.⁵ The collision statistics used in this paper include collisions where at least one person was injured or killed and where at least one of the vehicles involved was a light vehicle.⁶

⁵ Source: Canadian Motor Vehicle Traffic Collision Statistics, Transport Canada, 1991 - 1999.

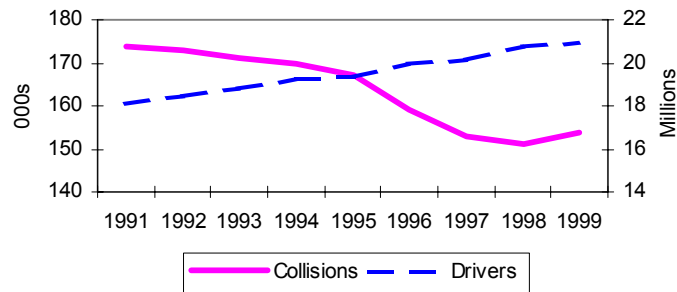
⁶ Light vehicles include passenger cars and trucks less than 4,536 kilograms.

In 1999, there were a total of 147,000 collisions involving close to 237,000 drivers in Canada.⁷

Collisions took opposite direction from population and drivers

Unlike population and licence statistics, collisions followed a different pattern. As population has increased we have seen the number of licensed drivers also increase. This was not the case with collisions. As both population and licensed drivers increased over the past ten years, collisions have declined. This could be a result of increased safety regulations, imposed training on younger drivers, improved safety features of vehicles (ABS, air bags etc.) and strict laws on drinking and driving.

Chart 2: Number of Collisions and Licensed Drivers, 1991-1999



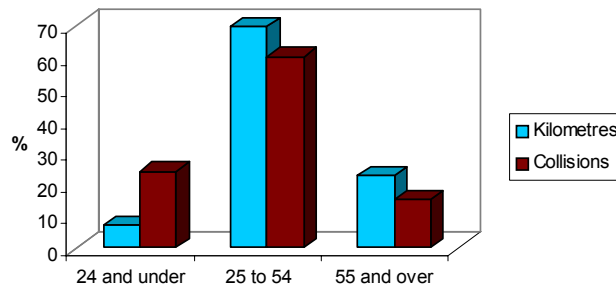
Sources: Transport Canada, Collision Statistics, Special Tabulations, 1999
Transport Canada, Canadian Motor Vehicle Traffic Collision Statistics, 2000

⁷ Excludes drivers where driver age is unknown.

More younger drivers involved in collisions

Population and driver licence data favoured the older drivers by almost a 2:1 ratio over younger drivers. With collisions, however, the pattern was reversed. There were 50% more younger drivers involved in collisions than older drivers,⁸ yet, the 55 and over age group drove more than three times the kilometres than younger drivers. Drivers in the younger age group were the only age group to account for a higher percentage of collisions than percentage of distance driven when compared to the totals.

Chart 3: Percentage of Kilometres Driven and Drivers Involved in Collisions by Age Group



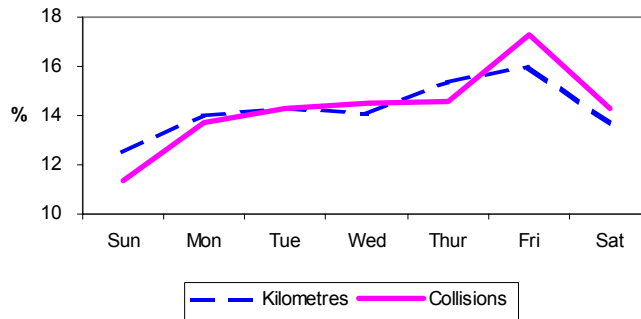
Sources: Transport Canada, Collision Statistics, Special Tabulations 1999
Statistics Canada, Canadian Vehicle Survey, Transportation Division, 2000

⁸ Data for collisions by age includes all drivers of light vehicles providing that at least one person (driver, passenger or pedestrian) in the collision was injured or killed. Drivers from different vehicle types, such as heavy trucks are excluded from these collision statistics.

Fridays remained dominant day for traffic and collisions

Friday, the busiest day of the week for distance driven, was also the day of the week that the highest percentage of traffic collisions occurred. Volume could have a direct effect on the number of collisions. However, the number of collisions on Fridays accounted for a slightly higher percentage than the percentage of distance driven. Throughout the rest of the week, collisions and kilometres driven followed almost an identical trend.

Chart 4: Percentage of Kilometres Driven and Collisions by Day of Week



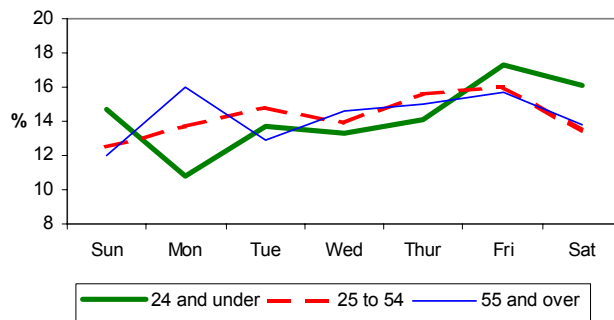
Sources: Transport Canada, Collision Statistics, Special Tabulations, 1999
Statistics Canada, Canadian Vehicle Survey, Transportation Division, 2000

Younger drivers drove more on weekends than older drivers

The majority of distance driven by the younger age group occurred during the weekend (Fridays, Saturdays and Sundays, 48%). The busiest three-day period of driving for persons aged 55 and over were Wednesdays, Thursdays and Fridays (45%). The least amount of driving for the younger age group occurred on Mondays (11%). Interesting enough, this was the same day that the older age group incurred the highest percentage of driving in terms of distance (16%).

The next highest day for distance driven by the older age group also fell on Friday, the busiest day of the week.

Chart 5: Percentage of Kilometres Driven by Age Group and Day of Week, 2000



Source: Statistics Canada, Canadian Vehicle Survey, Transportation Division, 2000

Collisions involving younger drivers moved in opposite direction

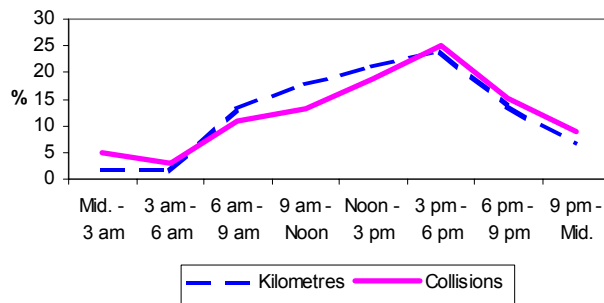
Younger drivers were involved in the majority of their collisions (46%) during the weekend (Fridays, Saturdays and Sundays) while older drivers followed a similar pattern to those aged 25 to 54 whose collisions (41%) were lower during the same three day period.

Highest percentages of driving and collisions occurred during the same times during the day

As was the case with day of the week, both collisions and distance driven also followed very similar patterns when it came to time of day. It would be expected that the majority of accidents would occur when driving was at its highest levels. Almost one quarter of all driving and collisions occurred during the hours of 3 p.m. and 6 p.m.

Noon to 3 p.m. was the next busiest period accounting for approximately 20% of both distance driven and collisions.

Chart 6: Percentage of Kilometres Driven and Collisions by Time of Day



Sources: Transport Canada, Collision Statistics, Special Tabulations, 1999
 Statistics Canada, Canadian Vehicle Survey, Transportation Division, 2000

Younger drivers followed similar pattern of those aged 25 to 54

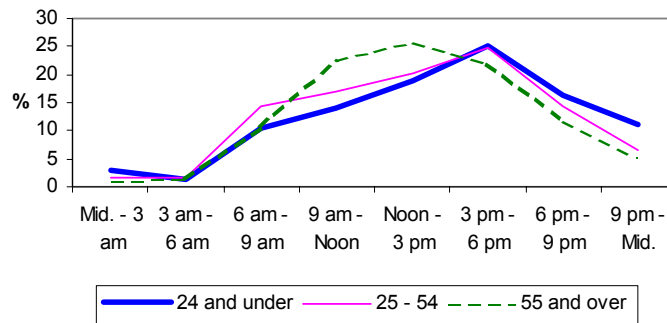
The highest time period for distance driven by younger drivers followed a similar pattern to that of drivers aged 25 to 54 years. The majority of distance driven by younger drivers fell between the hours of noon and 6 p.m., the same time period when young drivers encountered the majority of their collisions. Older drivers, on the other hand, drove more between 9 a.m. and 3 p.m.

Time collisions occurred followed similar pattern for all age groups

The time of day that collisions took place followed a similar pattern for all age groups. Similar to that of total collisions, all drivers were involved in the majority of collisions between 3 p.m. and 6 p.m., followed by noon and 3 p.m. The lowest percentage of any driver group involved in collisions took place overnight (between 9 p.m. and 6 a.m.), when the older age group was involved only 7% of the time.

There were more young drivers involved in collisions during the late hours of the evening and early morning than any other age group (19% between 9 p.m. and 3 a.m.).

Chart 7: Percentage of Kilometres Driven by Time of Day and by Age Group, 2000



Source: Statistics Canada, Canadian Vehicle Survey, Transportation Division, 2000

**Table 1
Percentage of Drivers Involved in Collisions, by Time of Day, by Age Group, 1999**

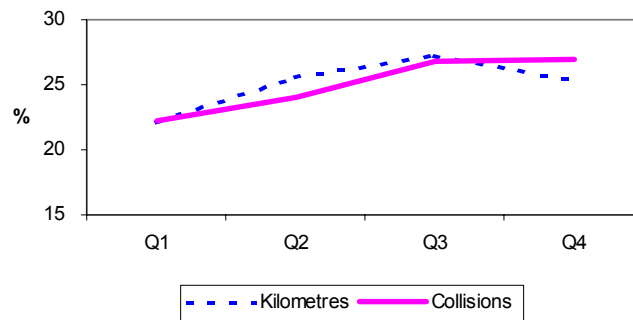
	16 - 24	25 - 54	55 and over
		%	
Mid. - 3 am	7	3	1
3 am - 6 am	4	2	1
6 am - 9 am	9	13	8
9 am - Noon	9	13	20
Noon - 3 pm	17	19	26
3 pm - 6 pm	25	27	28
6 pm - 9 pm	17	15	12
9 pm - Mid.	12	7	5
Total	100	100	100

Source: Transport Canada, Collision Statistics, Special Tabulations, 1999

Seasonal data reflected similar patterns between collisions and driving

Over 27% of the total kilometres driven were driven in the third quarter of the year (July, August and September). Furthermore, the least amount of distance driven was performed in the first quarter of the year (January, February and March) when Canadians would encounter inclement weather conditions. Although the pattern was quite similar with collision statistics, one might have expected that the same inclement weather conditions would cause significantly more collisions. This however was not the case. In fact, collisions and kilometres driven, in the first quarter, both represented 22% of their respective totals. Although there were 22% more kilometres driven in the third quarter compared to the first quarter, there were also 20% more collisions.

Chart 8: Percentage of Kilometres Driven and Collisions by Quarter



Sources: Transport Canada, Collision Statistics, Special Tabulations, 1999
Statistics Canada, Canadian Vehicle Survey, Transportation Division, 2000

Younger and older drivers followed similar seasonal pattern

All age groups drove more in quarters 2 and 3 than quarters 1 and 4, with the young and older age groups favouring the former period slightly more.

Table 2
Total Kilometres Driven by Quarter, by Age Group, 2000

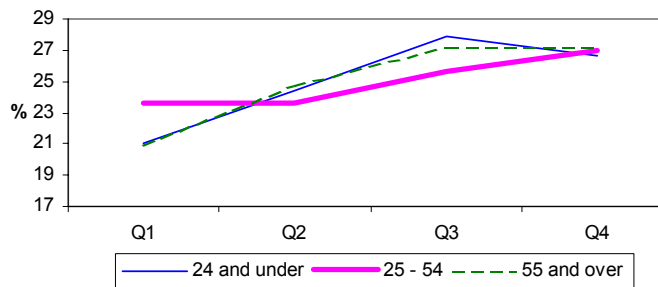
	24 and under	25 to 54	55 and older	Total
		%		
Q1	23	22	24	22
Q2	26	25	26	25
Q3	27	27	27	27
Q4	24	26	23	25

Source: Statistics Canada, Canadian Vehicle Survey, Transportation Division, 2000

Collisions by all age groups followed similar seasonal pattern

The percentage of drivers involved in collisions followed a similar pattern, between age groups, to that of the annual breakdown. Some differences could be seen, however, in the first and third quarters. In the first quarter there were fewer younger and older drivers involved in collisions than drivers aged 25 to 54 while the opposite was true in the third quarter.

Chart 9: Percentage of Drivers Involved in Collisions by Quarter and by Age Group, 1999



Source: Transport Canada, Collision Statistics, Special Tabulations, 1999

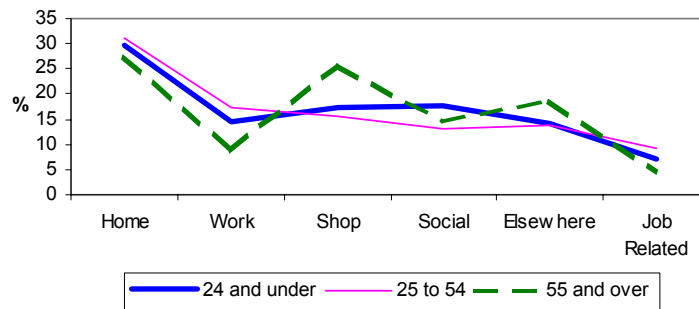
Majority of kilometres driven were destined for home

Over 30% of the total distance driven returned home. Trips to go shopping or run errands accounted for the second highest amount of kilometres driven at 18% followed by trips for work purposes with 15% of the total distance traveled.

Older drivers drove more to shop and less to work

Returning home was the main destination for driving for all age groups. This accounted for approximately 30% of their respective distances driven. Younger drivers followed a very similar pattern to that of drivers aged 25 to 54 where the remaining trip destinations were more evenly distributed.

Chart 10: Percentage of Kilometres Driven by Trip Destination and by Age Group, 2000



Source: Statistics Canada, Canadian Vehicle Survey, Transportation Division, 2000

Older drivers, however, drove more to shop and this accounted for over one quarter of their distance driven. For older drivers this was almost as high a destination for driving as returning home.

Conclusions

- Older drivers drove more than younger drivers, which was not surprising, given that the older age group accounted for relatively double the population and number of licensed drivers. More interesting was that although the older age group drove three times the distance than the younger age group, there were 50% more younger drivers involved in collisions.
- While Canada's population and number of licensed drivers have been steadily increasing over the past decade, the number of collisions on Canada's roads has declined.
- Collisions and vehicle-kilometres followed similar patterns despite vehicle-kilometres increasing and collisions declining.
- Males dominated every age group for number of licensed drivers, collisions and distance traveled. The older the population gets, the more males accounted for licences, collisions and more particularly for kilometres driven.
- Both distance driven and number of collisions followed similar patterns by day of week and by time of day. Fridays were the busiest day of the week and late afternoons were the busiest time of day for distance traveled and collisions.
- Younger drivers drove more on weekends with Friday being the busiest day while older drivers drove more on Mondays. Fridays were also the busiest day in terms of collisions, which may explain the high proportion of younger drivers involvement.
- In terms of why people drive, older drivers drove more to shop and less to work than younger drivers. Younger drivers, like the majority of the population, drove more for social and recreational purposes than to work or shop.

Appendix A

Data Sources

1. Estimates of Population, by Marital Status, Age Group and Sex, Canada, Provinces and Territories, Annual, 1991 – 2000, Demography Division, Statistics Canada, CANSIM II Table: 051-0010.
2. Number of Licensed Drivers by Gender and by Age, Canadian Motor Vehicle Traffic Collision Statistics, Transport Canada, 2000.
3. Canadian Motor Vehicle Traffic Collision Statistics, Transport Canada, 1999.
4. Canadian Vehicle Survey, Transportation Division, Statistics Canada, 2000

Note:

The views and opinions expressed in this paper are those of the author and do not necessarily reflect those of Statistics Canada. I would like to thank John Ross, Wendy Christoff, Mike Fahey and Shannon Foley for their valuable assistance, comments, corrections and criticisms. I would also like to thank the Motor Vehicle Traffic Collision Statistics section of Transport Canada for their assistance and all collision statistics special tabulations used in this paper.

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