

Driver Seat Belt Use at Border Crossings

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ABSTRACT

Observational surveys of driver seat belt use were conducted at 28 land border crossing sites between the United States and Canada. The purpose of the surveys was to examine the extent to which differences in seat belt laws and their enforcement in the two countries affect seat belt use among American and Canadian drivers who cross the international border. It was expected that the more stringent laws in Canada would have a positive impact on seat belt use by American drivers crossing the international border into Canada. Conversely, to the extent that U.S. seat belt laws and their enforcement are perceived to be less severe than in Canada, crossing into the United States was expected to have a negative effect on the seat belt use of Canadian drivers. The results provide support for the hypothesis.

INTRODUCTION

The rate of seat belt use differs dramatically between Canada and the United States. Surveys show that the belt use rate in Canada is 90 percent (Transport Canada, 1999), compared with only 69 percent in the United States (National Highway Traffic Safety Administration (NHTSA), 1999a). This difference may be attributable, in part, to differences in the history and approach to mandatory seat belt use laws.

In Canada, seat belt laws were introduced in several provinces in the mid-1970s (e.g., Quebec and Ontario in 1976). By December 1987, all provinces had mandatory seat belt laws. Since then, the laws have been strengthened with stiffer fines (up to \$500) and license demerit points in several provinces.

Mandatory seat belt use laws were slower to arrive in the United States. In 1983, no state had a seat belt law. Fifteen years later, almost all states had one. New Hampshire remains the only state without a law requiring adult drivers to use seat belts. Penalties for nonuse are typically fines of \$10-25; only 2 of 51 jurisdictions include license demerit points.

Mandatory seat belt use laws (including their promotion and enforcement) appear to have had a dramatic impact on the use of occupant restraints in both countries. For example, in Canada, 4 years after the first provinces implemented mandatory seat belt laws in 1980, the national seat belt use rate stood at 36 percent (Transport Canada, 1988). Seven years later, when all provinces had seat belt laws, the use rate had risen to 74 percent. As noted previously, the seat belt use rate in Canada is presently 90 percent.

The use rate in the United States was estimated to be about 14 percent in 1983, when no state had a seat belt law. In 1998, when all but one state had a mandatory use law, the belt use rate had risen to 69 percent (NHTSA, 1999b). Despite these recent gains, the use rate in the United States is still some 20 percentage points lower than it is in Canada.

As suggested above, part of the difference might be attributable to the fact that the laws are more recent in the United States and carry lesser penalties. Another reason might be the type of law and the way it is enforced. In Canada, all jurisdictions have primary enforcement laws that allow a police officer to stop a vehicle solely on the basis of an observed seat belt violation. In the United States, only 15 jurisdictions have primary enforcement laws. The majority of states have secondary enforcement laws that allow enforcement only after a traffic stop has been made for other purposes.

The average seat belt use rate in states with a primary enforcement law is 79 percent; in states with a secondary enforcement law seat belt use is estimated at 62 percent (NHTSA, 1999a). This suggests that part of the difference in use rates between Canada and the United States is a function of the type of law that exists.

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The extent of enforcement is also a factor in determining seat belt use rates (e.g., Campbell, 1988). In Canada, intensive enforcement campaigns combined with publicity have been commonplace, and these programs have been shown to have a dramatic impact on seat belt use rates (Dussault, 1990; Jonah and Grant, 1985; Jonah et al., 1982). This style of enforcement/awareness campaign continues under the auspices of national programs such as the National Occupant Restraint Program and Operation Impact.

The intensive enforcement/awareness campaign common in Canada also has been implemented successfully in selected locations in the United States, notably in Elmira, New York, and in North Carolina and New York State (New York State Police, 1999a, 1999b; Williams et al., 1987; Williams et al., 1996; Williams et al., in press). However, the use of “Canadian style” enforcement campaigns has been less widespread. In a recent survey, 50 percent of Canadian drivers said they had been stopped and checked for seat belt use compared with 22 percent of U.S. drivers (Cammisa et al., 2000).

In summary, the difference in seat belt use rates between the United States and Canada can be attributed to several factors. Canada has a longer history with mandatory seat belt use laws than many states. Intensive enforcement campaigns combined with publicity were successfully used by several Canadian provinces to increase seat belt use (Dussault, 1990; Jonah and Grant, 1985; Jonah et al., 1982). In addition, all jurisdictions in Canada have primary enforcement laws, and they apply to all passengers, not just those in front seats. Finally, Canadian laws carry greater penalties. All of these factors may contribute to the observed differences in seat belt use between the two countries.

Drivers may be sensitive to these differences in belt use laws and may alter their behavior as they travel from one country to the other. The 3,000-mile border between the United States and Canada provides an opportunity for determining if patterns of seat belt use change as American and Canadian drivers cross from one jurisdiction into another, particularly if the jurisdictions have different laws, sanctions, and rates of seat belt use.

The purpose of the present study was to examine the extent to which different seat belt laws in the United States and Canada affect seat belt use among American and Canadian drivers who cross the international border. It was expected that the more stringent laws and/or the more compliant social environment vis-à-vis seat belt use in Canada would have a positive impact on seat belt use by American drivers. Conversely, if Canadian drivers perceive U.S. seat belt laws and enforcement as being less severe than in Canada, crossing into the United States may have a negative effect on the use of seat belts by Canadian drivers.

METHOD

Observational surveys of driver seat belt use were conducted at 28 land border crossing sites between the United States and Canada. Many of the more remote crossings were excluded due to

insufficient traffic volume. Observations were made along the roadway leading to or coming from a customs/immigration checkpoint. Locations for observations were selected to ensure there were no turnoffs between the point of observation and the border. Hence, all vehicles were observed either as they were about to cross the international border or just after having done so.

Three teams of two observers visited border crossings in the daytime during the last week of June and the first two weeks of July 1999. At each border crossing site, a total of 8 hours of observations were recorded. Each observer recorded 2 hours on the Canadian side and 2 hours on the American side, split equally between northbound and southbound traffic.

Observers recorded shoulder belt use of drivers of all noncommercial highway vehicles (excluding motorcycles). In addition, observers recorded driver sex, type of vehicle, and the state or province of vehicle registration.

At some of the busier sites, observers were unable to record the information for every vehicle. To ensure that vehicles were selected randomly from the traffic flow, observers picked a landmark (utility pole, highway sign) approximately 25 meters up the road. After an observation was completed, the next vehicle passing the landmark was selected as the vehicle to observe. During the observation period, a hand counter was used to record the total number of vehicles traveling in the direction being observed.

RESULTS

A total of 13,165 vehicles were observed: 6,842 vehicles with license plates from one of the American states and 6,323 vehicles with license plates from a Canadian province. (For simplicity, drivers of vehicles registered in the United States will be referred to as American drivers; drivers of vehicles registered in Canada will be referred to as Canadian drivers.)

To adjust for the different likelihood of selection at various border crossing sites, the data were weighted by the traffic count at the crossing. This procedure assigned greater weight to observations at busier crossings.

Observed seat belt use rates for American and Canadian drivers are presented in Table 1. Overall seat belt use at border crossings was quite high. Seat belt use among American drivers (83 percent) was, however, significantly lower than among Canadian drivers (89 percent; $\chi^2=76.5$, $p<0.001$).

Interestingly, the relatively high observed seat belt use rate for Canadian drivers (89 percent) was comparable with the 90 percent reported for all of Canada (Transport Canada, 1999), but the rate for American drivers (83 percent) was considerably higher than the overall 69 percent seat belt use rate for the United States (NHTSA, 1999a).

Table 2 presents the belt use data for American and Canadian drivers by the country in which they were observed and the direction of travel. Seat belt use by Canadian drivers was higher than that of

Table 1
American and Canadian Drivers' Seat Belt Use
According to Sex and Vehicle Type (Weighted Frequencies)

	American Drivers (%) (N=7,311)	Canadian Drivers (%) (N=5,801)
Overall	83	89
Male	82	87
Female	88	92
Car	85	90
Van	80	80
Minivan	86	93
Sport utility	83	86
Pickup truck	73	79

Table 2
American and Canadian Drivers' Seat Belt Use
According to Direction of Travel and Country of Observation

	American Drivers (%)	Canadian Drivers (%)
Northbound	83	87
in United States	82	88
in Canada	85	86
Southbound	83	90
in United States	81	89
in Canada	84	90

American drivers regardless of the country in which they were observed ($p < 0.001$). American drivers observed in Canada, however, were more likely to be using seat belts (85 percent) than those observed in the United States (82 percent; $\chi^2 = 13.6$, $p < 0.001$). The largest difference was observed at border crossings in Maine, where 68 percent of American drivers on the U.S. side were using seat belts, but 85 percent on the Canadian side were buckled up. This effect was consistent across types of vehicles and driver sex and was independent of the type of law (i.e., primary or secondary) in the neighboring state.

Whereas American drivers' use of seat belts was related to the country in which they were observed, Canadian drivers' use of seat belts differed according to the direction of travel. American drivers, whether entering Canada (northbound) or returning to the United States (southbound), did not differ in their use of seat belts (both 83 percent). Canadian drivers, however, displayed a different use rate depending on their direction of travel. Canadian drivers returning from the United States (northbound) had a significantly lower rate of seat belt use than drivers leaving Canada (southbound) (87 vs. 90 percent, respectively; $\chi^2 = 14.2$, $p < 0.001$). This effect was independent of driver sex, type of vehicle, and type of law in the neighboring state.

DISCUSSION

Seat belt laws, enforcement, and promotional activities in the United States generally have lagged behind those of Canadian provinces. Consequently, seat belt use rates for American drivers typically are lower than those for Canadian drivers. Seat belt use among American and Canadian drivers in the present study proved no exception. Regardless of the country in which they were observed, Canadian drivers' use of seat belts was consistently higher than that of American drivers.

A somewhat unexpected finding was the fact that seat belt use by American drivers at international border crossings (83 percent) was considerably higher than the overall rate for the nation (69 percent) (NHTSA, 1999a). Within each state, the use rate observed at border crossings was higher than that reported for the state as a whole.

These results would appear to indicate that crossing the international border into Canada has a beneficial impact on American drivers' use of seat belts. The fact that all drivers must stop at borders and be questioned by a customs/immigration officer may serve to increase the perceived risk of apprehension for a seat belt violation. Drivers also may be more likely to buckle up when crossing the international border to avoid arousing any suspicion on the part of the customs/immigration officer that might result in a more thorough inspection. On the other hand, drivers who cross the international border might represent a select group of the population who are more likely to use seat belts, or they may be more likely to use belts because they are making longer trips.

The apparent beneficial effect of crossing the international border on seat belt use was specific to American drivers. Use rates for Canadian border-crossers were slightly lower than the overall provincial use rates. Therefore, it is unlikely that it was the formalities of the customs/immigration checkpoint that prompted drivers to be more conscientious about using seat belts. Rather, seat belt use may vary at international border crossings as a function of the perceived seat belt laws, level of enforcement, or seat belt use rates on the other side of the border.

The validity of this latter hypothesis is given credence by two findings from the present study. First, American drivers observed on the Canadian side of the border were more likely to be using their seat belts than American drivers observed on the U.S. side. American drivers may perceive Canadian seat belt laws to be considerably tougher and/or the enforcement of those laws to be more stringent than in their home state. They may also observe that most Canadian vehicle occupants use seat belts. Consequently, seat belt use becomes acceptable, perhaps expected, behavior.

Second, there is some evidence that Canadian drivers have a reaction opposite to that of American drivers when crossing the border. When returning from the United States, Canadian drivers were less likely to be observed using their seat belts than when entering the United States. Canadian drivers may perceive U.S. seat belt laws to be weak and enforcement relatively lax and see that use rates

are not as high as in Canada. It may be that when in the United States, some Canadian drivers begin to leave their seat belts undone, and this effect is seen on their return to Canada, although this argument would be stronger if northbound Canadian drivers still in the United States had lower belt use than northbound Canadian drivers observed in Canada. Southbound Canadian drivers, on the other hand, have not yet been exposed to U.S. influences, especially the subgroup with the highest belt use of 90 percent — i.e., southbound Canadian drivers still in Canada.

The magnitude of the observed differences in seat belt use among American and Canadian drivers at border crossings, although statistically significant, were not large. Nevertheless, small percentage differences become increasingly important as the overall use rate increases. The residual group of nonusers is known to have a higher crash risk than regular users. Results from the current study suggest that the presence of a strong law combined with a perceived high level of enforcement and/or a conducive social environment may enhance restraint use among at least a portion of this reluctant and high-risk population.

In the absence of information from drivers about the reasons for their change in seat belt use when crossing the international border, the proposed explanations remain speculative. Nevertheless, crossing the international border between Canada and the United States appears to affect the belt use of both American and Canadian drivers. Greater understanding of the factors responsible for these effects may assist in the development of programs and policies to enhance overall seat belt use.

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