

WILL STRICTER PENALTIES DETER DRUNK DRIVING?

The federal government is considering tougher penalties for drunk driving. It's true that over the period 1976-92 stiffer penalties were enacted and traffic fatalities involving legally intoxicated drivers fell. But multivariate regression shows that other factors may have had a greater influence on the decline. The most important were the introduction of compulsory seat belt legislation in most provinces, as well as a decline in the number of young males in the population. In fact, with the exception of fines for driving without a licence, most penalties had no statistically significant effect on fatalities. Policy-makers may therefore wish to focus on general safety measures.

Le gouvernement fédéral envisage d'imposer des amendes plus sévères pour la conduite en état d'ébriété. Entre 1976 et 1992, des amendes plus sévères ont été imposées et le nombre de décès imputables à des accidents causés par des conducteurs en état d'ébriété a chuté. L'analyse de régression multivariée nous indique toutefois que d'autres facteurs ont vraisemblablement eu une incidence encore plus grande sur cette diminution. Les plus importants sont l'introduction du port obligatoire de la ceinture de sécurité dans la plupart des provinces canadiennes, ainsi qu'une réduction du nombre de jeunes hommes dans la population. À vrai dire, sauf pour les amendes qui visent les personnes conduisant sans permis de conduire, la plupart des amendes n'ont eu aucun effet significatif au plan statistique sur les victimes de la route. Les législateurs auraient donc intérêt à axer davantage leurs efforts sur les mesures générales de sécurité.

Anindya Sen

A recent spate of drunk-driving accidents has heightened public concern over the efficacy of current drunk driving legislation. The federal government has responded by introducing a new bill that proposes stricter penalties for drunk driving. A key feature of this bill is an increase in the maximum sentence given to a drunk driver who kills, from the current 14 years in prison to life.

My objective in this article is to question whether stricter penalties will significantly deter drunk driving. One measure of the prevalence of drunk driving is the number of legally intoxicated drivers — that is, those with a blood alcohol content exceeding 0.08 per cent — who are killed in motor vehicle accidents. In recent research, I have attempted to relate changing trends in the number of such deaths to the enactment of sterner penalties for drunk driving over the past two decades. I find that between 1976 and 1992 stricter

penalties had little statistical impact on such fatalities. This result is surprising, given the raw correlation between a drop in legally-intoxicated-driver fatalities per 100,000 licenced drivers over this period and the simultaneous introduction of tougher anti-drunk driving legislation. On the other hand, the decline in legally-intoxicated-driver fatalities is significantly associated with the enactment of mandatory seatbelt laws. Therefore, a more cost-effective allocation of societal resources may be to focus on initiatives targeted at vehicle safety, rather than stricter penalties.

The *Criminal Code* makes the following actions offences: operating a motor vehicle with a blood alcohol content exceeding .08 per cent, refusing to take an alcohol/drug test, and continuing to drive with a suspended licence. These provisions are known, respectively, as the “illegal *per se* law,” “the



PHOTO: OTTAWA CITIZEN

Longer jail terms won't help

implied consent law,” and the “driving while disqualified law.” Any driver convicted of disobeying these laws may be punished with an automatic licence suspension, fines and/or a prison sentence, depending on the severity of the transgression. Although stricter *Criminal Code* penalties were enacted in 1985, provincial impaired driving laws based on the *Criminal Code* are often more severe than federal law. For example, by 1992 all provinces had automatic licence suspensions for first-time offenders against the illegal *per se* and implied consent laws that exceeded the federal standard. Moreover, provincial penalties have become tougher over time. For example, in 1975 five provinces had suspensions of six months for first-time offenders against the illegal *per se* and implied consent laws. At that time, this was the longest period of suspension. By 1992, six provinces had a penalty of 12 months.

The increasing severity of provincial drunk driving laws is also evident in other initiatives. Some provinces subject impaired drivers to temporary administrative licence suspensions, which require the automatic suspension of an individual's licence after a *Criminal Code* impaired driving offence. Police officers can suspend an individual's licence when his or her blood alcohol content exceeds a specified level (generally .05 per cent). No conviction is required for automatic licence suspension. Manitoba instituted a

three-month licence suspension for first-time offenders in 1989. Nova Scotia and Ontario introduced similar legislation in 1995 and 1996, respectively.

Other laws may also affect the incidence of drunk drinking. In 1975, most provinces had a legal drinking age of 18 years. By 1992, with the exception of Alberta and Quebec, all provinces had a legal drinking age of 19 years or more. The increasing frequency of “open container” laws across most provinces also reflects diminished tolerance towards drunk driving. Such laws forbid the presence of open containers of alcohol in automobiles. Five provinces had open container laws in 1975. Three more enacted them by 1992. Finally, the last two decades have also witnessed the implementation of new traffic safety initiatives. As of January 1976, Ontario was the only province that required drivers to wear seat belts. By 1988, all provinces had such laws.

In sum, there has been a clear trend towards more severe punishment for drunk drivers.

What has been the effect on drunk driving outcomes? Traffic fatalities are the most common measure used to assess trends in drunk driving. According to figures released recently by the House of Commons Justice Committee, every year drunk drivers injure 74,000 people and kill 1,400 more. That is

The empirical results suggest that drunk driving legislation has had little impact on the incentive to drink and drive. In most cases, there was no statistically significant relationship between deaths of drunk drivers and such measures.

more than two and half times the number of homicides committed in Canada in 1997.

It is also important to acknowledge, however, that between 1976 and 1992 deaths of legally intoxicated drivers actually decreased by about 50 per cent per 100,000 licenced drivers. Other statistics also support the notion that drunk driving has declined over the past two decades. For example, over the same period the share of driver fatalities accounted for legally intoxicated drivers declined by roughly five per cent, while the share involving drivers whose blood alcohol level was zero increased by roughly ten per cent. Perhaps stiffer penalties *have* reduced drunk driving.

Confining the analysis to such a simple methodology may produce deceptive results, however. A variety of other factors, aside from the enactment of stricter penalties, may have been responsible for the drop in driver fatalities over the chosen sample period. For example, young males have declined as a percentage of total population for the past 20 years. Because young males quite often are associated with drunk driving, the decline in overall driver fatalities may simply be due to the fact that fewer young males are on the roads. What is needed is a way of estimating the impact of different drunk driving laws on traffic fatalities, while at the same time controlling for other potential factors that may influence traffic fatality trends. Multivariate regression analysis does exactly that. If two or more “explanatory variables” are thought to influence trends in a “dependent variable” — then the “coefficient” on each explanatory variable in an “ordinary least squares” estimate denotes the average change in the dependent variable as a result of a change in that specific explanatory variable, independent of changes in any of the other explanatory variables.

In applying multivariate regression analysis to this

problem, I chose as the relevant dependent variable the number of deaths of legally intoxicated drivers per 100,000 licenced drivers in each province between 1976 to 1992. To capture the deterrent effects of *Criminal Code* provisions such as “implied consent,” “illegal *per se*” and “driving while disqualified legislation,” I used provincial penalties in the form of automatic licence suspension, fines and jail terms as explanatory variables. I also used province-specific minimum legal drinking ages, and the presence or not of administrative licence suspensions and open-container laws. I also took into account legislation aimed at enhancing general traffic safety — in the form of mandatory seatbelt legislation, highway speed limits, and automobile insurance regulation.

Finally, in order to account for the impact of non-legislative factors, I included variables that measured traffic density, road conditions, demographic trends, education levels, medical care, economic conditions, and alcohol consumption and availability within and across provinces. The above variables were available for most provinces between 1976 and 1992, though not for Quebec, New Brunswick or Newfoundland until the mid- to late 1980s. Multivariate regression analysis was therefore run on an unbalanced panel of province-level data for 1976-82. The total number of observations was 137, with degrees of freedom equal to 86. Province- and year-specific fixed effects were employed to account for unobserved heterogeneity.

The empirical results suggest that drunk driving legislation has had little impact on the incentive to drink and drive. In most cases, there was no statistically significant relationship between deaths of legally intoxicated drivers and the legislative measures described above. The only drunk driving law that had statistically discernible effects was fines for driving while disqualified. On average, its coefficient estimate implied a reduction of one driver fatality for every \$200 increase in fines enacted by a province in a given year. On the other hand, traffic safety laws are more significantly correlated with a fall in legally intoxicated driver deaths. The enactment of mandatory seatbelt legislation across provinces is consistently correlated with a 27 per cent drop in the number of intoxicated driver deaths per 100,000 licenced drivers. Automobile insurance regulation, in the form of compulsory third-party insurance, also seems to exert some influence on an individual's incentive to drink and drive. Empirical estimates suggest that a \$7000 increase in minimum third-party liability coverage is significantly associated with a reduction of nearly one

driver fatality per province. This may be attributable to the fact that increasing compulsory third-party coverage usually entails experience-rated premiums, which force drivers to be more careful, and may consequently deter them from drinking and driving.

Several other factors are significantly associated with declines in fatalities involving legally intoxicated drivers. The number of liquor stores per capita of population is significantly but inversely correlated with legally intoxicated deaths. In other words, the greater the number of liquor stores per capita, the fewer the number of deaths. If this seems counter-intuitive, it may be that an increase in the number of liquor stores reduces average vehicle travel time, thus reducing the probability of being involved in an accident.

On the other hand, different demographic variables are significantly associated with an increase in legally impaired driver fatalities. Intoxicated-driver deaths within and across provinces increase with the percentage of young males (15 to 24 years of age) within the population. This is unsurprising, as drinking and driving is widespread within this category. Intoxicated-driver deaths are also significantly related to increases in the percentage of the population over

65 years of age and the share of a province's population living in urban areas (cities with more than 100,000 people). Elderly drivers may be less able to respond quickly to sudden careless driving by intoxicated drivers, which increases the probability of drunk drivers being involved in an accident. Similarly, the greater traffic density in urban areas may increase the probability of a fatal accident.

The federal government is proposing amendments to existing drunk driving legislation. The above discussion suggests that enacting stricter penalties may not be the most efficient way of deterring drunk driving. The introduction of sterner penalties had little impact on trends in traffic deaths of legally intoxicated drivers over a recent nearly two-decade time period (1976-92). Instead the variable with the greatest impact on intoxicated driver fatalities was mandatory seatbelt legislation. These results suggest that initiatives aimed at vehicle safety may be a better means of saving the lives of individual drivers.

Anindya Sen is an assistant professor in the Department of Economics, University of Waterloo.

56 YEARS AHEAD OF HIS TIME

Washington, April 5, 1932 — Representative Celler of New York appealed to President Hoover today to open negotiations with Canada looking to tariff reciprocity. In a letter to the President, he expressed the belief that a customs union between the neighboring States, with resultant reduction in tariffs, would mitigate the depression, and would "undoubtedly" be followed by similar agreements with other countries. He included with his letter a set of figures showing the decline in trade with Canada, and said that whatever can be done to remedy this situation should not be left undone. Mr. Celler has been conducting a campaign to bring about a customs union with Canada, having already written Premier Bennett of the Dominion urging his co-operation...

"We have unquestionably come to a parting of the ways," [Mr. Celler said in his letter]. "We must determine whether high tariff walls shall isolate us permanently from Canadian markets or whether we shall lower these walls and again become good commercial friends."

The Globe and Mail, "Century of the Millennium," April 6, 1999.

'MOST PROSPEROUS,' TOO

A United Nations report said that Canada was the most prosperous nation, with Britain 10th and Sierra Leone bottom at 174th; yet Britain, it pointed out, had a functional illiteracy rate of 22 per cent.

Last item in "Portrait of the Week," The Spectator, 17 July 1999.