



Sanction changes and drunk-driving injuries/deaths in Taiwan



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ABSTRACT

Driving under the influence (DUI) is one of the major causes of traffic accidents in Taiwan. About 5% of injuries involve DUI, and nearly 20% of deaths are due to alcohol-related crashes. During early 2006 to the end of 2014, the authorities in Taiwan increased the severity of fine and jail penalties for DUI offenders three times. At the same time, the monthly drunk-driving injuries decreased nearly 40% and the monthly alcohol-related traffic death dropped more than 80%. In this paper, we examine the effects of sanction changes on the reduction of drunk-driving casualties during this period. We find that drunk-driving injuries and deaths significantly dropped after the statutory changes. The reduction was immediate following all sanction changes that raised the maximum fines or jail terms of DUI offenders. Policies that increased the maximum jail terms of DUI offenders seem to have a better gradual effect on the reduction of alcohol-related traffic casualties. Although increased sanctions are found to be effective in reducing drunk-driving casualties, we need more future research to examine the policy-to-perception and the policy-to-behavior links.

1. Introduction

Road-traffic injuries are the leading cause of death globally, as every year more than 1.2 million people die and up to 50 million people incur a non-fatal injury in road crashes (WHO, 2015). Alcohol intoxication is one of the top reasons for all road crashes. In 2012, alcohol was responsible for 14% of traffic crashes in Chile, 14.5% of all road deaths in France, about 9–10% of all fatal crashes in Austria, Poland and Finland, and 9.4% of all fatalities in Germany (OECD and International Transport Forum (ITF), 2014). In the United States, 9,967 people were killed in alcohol-impaired driving crashes, accounting for nearly one-third (31%) of all traffic-related deaths in 2014 (National Center for Statistics and Analysis (NCSA), 2015). The annual cost of alcohol-related crashes totaled more than US\$44 billion (Blincoe et al., 2015).

Similar to other places in the world, driving under the influence (DUI) or driving while intoxicated (DWI) is also one of the major causes of traffic accidents in Taiwan. About 5% of injuries involve DUI and nearly 20% of deaths are due to alcohol-related crashes in Taiwan (Ministry of Interior R.O.C. (MOI), 2015). Although DUI has been criminalized for nearly two decades, traffic crashes still caused more than 20,000 injuries and 190 deaths per month. These injuries and deaths not only represent a very significant cost to society, but also bring about a huge amount of medical expenditures. During

2000–2009, the National Health Insurance and medical expenditures of injuries and deaths caused by DUIs surpassed NT\$2 billion (US\$67 million) per year, excluding follow-up treatment and rehabilitation expenditures (Control Yuan, 2010).

Over the past half century, there has been a growing awareness of the problems caused by DUI. Authorities have put forth many efforts to prevent the occurrence of alcohol-impaired driving, such as beer taxes, minimum legal drinking ages, blood alcohol content limits, the provision of alcohol education, and the establishment of drug and alcohol treatment programs (Babor 2010; Chang et al., 2012). To further help reduce intoxicated driving incidents, government agencies commonly use deterrence-centered sanctioning, including reductions in alcohol concentration limits, license suspensions, fines, incarceration, increased pecuniary punishment or jail terms, and other penalties (Andenaes, 1988; Wagenaar et al., 2007; Weatherburn and Moffatt, 2011). If legal sanctions are perceived as being certain, swiftly applied and severe, then it is believed that drunk-driving accidents could be reduced through deterrence in the short run (Nichols and Ross, 1988). Deterrence sanctioning may also trigger gradual changes in moral attitude toward alcohol-impaired driving in the long run (Andenaes, 1971; Snortum, 1990). Moreover, the fear of being labeled as a drunk driver and the loss of one's freedom might also deter crime (Block and Lind, 1975; Rasmussen, 1996).

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There are two basic types of deterrence, general and specific. General deterrence refers to the effect of threatened punishment upon the general population. Specific deterrence pertains to the effect of legal punishment on punished offenders to reduce the reoccurrence of an offense (Andenaes, 1975; Gibbs, 1975; Nichols and Ross, 1988). A considerable body of research has examined the general and specific deterrent effects of penalties for drinking-and-driving behaviors and subsequent traffic crashes. Strong evidence was shown for the general deterrent effects of breath tests (Kenkel 1993; Sen, 2001), mandatory jail terms for first offenders, administrative license suspensions, sobriety checkpoints, prohibitions of plea bargaining in drunk-driving cases (Kenkel 1993; Wagenaar et al., 2007), increased fines (Wagenaar et al., 2007), lower blood alcohol content (BAC) limits with roadside random breath testing (RBT) and strict sanctions (Homel, 1994; Deshapriya and Iwase, 1996; Chang and Yeh, 2004; Desapriya et al., 2007), beer taxes (Evans et al., 1991), and mandatory seat belt use laws (Evans et al., 1991; Sen, 2001).

As for specific deterrence, the results are mixed (Yu 1994; Hansen 2015; Woodall et al., 2004; Weatherburn and Moffatt, 2011; McArthur and Kraus, 1999). On one hand, some studies provided evidence to support the specific deterrence effect of license withdrawal, high fines (Yu, 1994), and stricter punishments on BAC limits (Hansen, 2015). On the other hand, some studies showed mixed results. For example, Woodall et al. (2004) found that the 28-day jail/treatment programs for first-time DUI offenders were effective at reducing DUI recidivism but not subsequent alcohol-related crashes. Weatherburn and Moffatt (2011) even noted that higher fines do not have effects on reducing drink-driving recidivism in Australia.

In Taiwan, drunk driving was criminalized in 1999, which made driving under a breath alcohol concentration level (BrAC) of more than 0.55 milligrams per liter (mg/L) a punishable offence (Huang and Sun, 2013). Prior to the 1999 criminalization, drinking and driving (BrAC over 0.25 mg/L) seldom caught police attention as an administration violation. From early 2006 to the end of 2014, the authorities in Taiwan increased the severity of monetary and prison penalties for DUI offenders three times, focusing on fine penalties the first time, jail penalties the second time, and then a combination of fine and jail terms. At the same time, the number of drunk-driving injuries fell nearly 40% and the number of alcohol-related traffic deaths dropped more than 80%.

In this paper we examine the effects of sanction changes on the reduction of drunk-driving injuries and deaths during this period. Since the first two statutory changes in Taiwan did not contain lower blood alcohol levels, we are more likely to analyze the deterrent effects of increased fines and increased jail terms instead of the synergistic effects of increased fines, longer jail terms and higher probability of law violations, which is different from many previous studies that examined the effects of lower blood alcohol levels. The time series analysis allows us to estimate the immediate and gradual effect of policy changes, instead of assuming the interventions as a step function. Our major interest is the outcome of legislation changes at the society level. Therefore, this study focuses on examining the general deterrence of stricter legislation to the general public. Changes in the recidivism rate of known offenders during the law reform will not be included in our discussion.

2. Policies in Taiwan

There are two types of sanctions to DUI offenders in Taiwan, criminal and administrative. Prior to April 1999, DUI was not a serious crime in Taiwan, as long as the drivers did not cause any road-traffic injury. People with BrAC below 0.25 mg/L were able to drive without any punishment. However, drivers with BrAC between 0.25 and 0.55 mg/L were in violation of the Road Traffic Security Rules, making it an administrative violation. According to the Road Traffic Management and Penalty Act, they would face license suspension, revocation, or pecuniary punishment. Although drunk drivers causing road traffic injuries were accused of negligent homicide or negligent

assault, these penalties were believed to be too light.

As increasing numbers of road-traffic injuries were caused by alcohol-impaired driving, the authorities in April 1999 passed an amendment to Article 185 of the Criminal Law. Drivers caught with BrAC exceeding 0.55 mg/L in the breathalyzer test would then face criminal sanctions. They would be penalized with imprisonment up to 1 year, criminal detention, which could be from 1 day to 59 days, or a fine of no more than NT\$30,000 (US\$1,000), even though they were not involved in traffic accidents. From then on, a DUI infraction was split into three levels. The thresholds were 0.25 mg/L and 0.55 mg/L between April 1999 and March 2013. Drivers with BrAC between 0.25 and 0.55 mg/L would be in violation of the Road Traffic Security Rules. Drivers with BrAC exceeding 0.55 mg/L would be in violation of Article 185 of the Criminal Law. The thresholds further dropped to 0.15 mg/L and 0.25 mg/L in June 2013.

According to the Road Traffic Management and Penalty Act, drunk drivers who violated the Road Traffic Security Rules were to be fined between NT\$15,000 to NT\$60,000 (US\$500-US\$2,000). In addition, their license could be suspended or revoked and the drivers were permanently prohibited from driving if the DUI incident caused a traffic accident resulting in any serious injury or death. From January 2001 to February 2013, the authorities amended the Road Traffic Management and Penalty Act and the Road Traffic Security Rules several times, setting a stricter standard. Therefore, drunk drivers were more likely to face license suspension or revocation once they have violated the laws. Their pecuniary punishment, however, maintained the same range, between NT\$15,000 to NT\$60,000 (US\$500-US\$2,000) for all drivers who violated the Road Traffic Security Rules until the amendment in early 2013 that increased the maximum pecuniary punishment and stated an incremental pecuniary punishment to recidivists. The Criminal Law was amended in very different ways.

I The amendment to Article 185 of the Criminal Law in January 2008

This amendment first increased the punishment of fines. Starting from January 2008, drivers caught with BrAC exceeding 0.55 mg/L in the breathalyzer test would still be penalized with imprisonment up to 1 year, criminal detention, or a fine, but the pecuniary punishment increased 5 times, from the original NT\$30,000 (US\$1,000) to now NT\$150,000 (US\$5,000).

II The amendment to Article 185 of the Criminal Law in December 2011

In this second amendment, the authorities mainly increased the length of incarceration penalty. From December 2011, drivers caught with BrAC exceeding 0.55 mg/L in the breathalyzer test still faced imprisonment, criminal detention, or a fine. The period of incarceration, however, doubled from up to 1 year to now up to 2 years, and the fine increased to up to NT\$200,000 (US\$6,666). In addition, there were incremental sanctions to a DUI offense that resulted in injury or death. For offenders who caused injuries, imprisonment would be 0.5–5 years. For those who caused deaths, imprisonment would increase to 1–7 years.

III The amendments to Road Traffic Security Rules, Road Traffic Management and Penalty Act and Article 185 of the Criminal Law in 2013

In 2013 the authorities amended the Road Traffic Security Rules again, increasing the pecuniary punishment from NT\$15,000-NT\$60,000 (US\$500-US\$2,000) to now NT\$15,000-NT\$90,000 (US\$500-US\$3,000). The newly amended rules took effect on March 1st of that same year. Moreover, there were new rules providing incremental pecuniary punishment to DUI recidivists. For DUI offenders who violate the Road Traffic Security Rules and recidivate within 5 years, the fine

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