

Drunk driving: The role of alcohol consumption, situational aspects and general deterrence

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1. Abstract

Consistent with our previous research, the decision for drunk driving is conceptualized to reflect the ratio of inhibiting and facilitating cognitions. A number of variables have been previously suggested to moderate this ratio, and thus, the likelihood of drunk driving. This study has the goal to assess effects of alcohol consumption, situational aspects, and general deterrence (i. e. the role of criminal law) within a common experimental context (hypothetical scenario). Thus, participants were asked to estimate the likelihood of driving under increasing levels of alcohol consumption (0.5‰ to 3.0‰ BAC) and different variations in the social context (social disapproval, accident risk, risk of apprehension, cost/benefit incentives). In addition, a questionnaire assessed effects of general and specific deterrence. A total of 163 drunk drivers and 147 sober drivers participated in this study.

The results revealed that the importance of different context conditions varied largely across individuals, especially under high alcohol consumption. That is, subgroups are differentially sensitive to risk apprehension, social disapproval and accident risk. Interestingly, for the majority of individuals, two aspects of general deterrence (risk of apprehension and severity of punishment) do not seem to be an important part of their cognitions on drunk driving. On the other hand moral attachment and social disapproval (especially by friends, peers etc.) are of major importance for the expected future behavior. Implications for prevention and intervention are discussed. Concerning crime policy the proposal is to replace fines by penal warnings in combination with counseling and – if necessary – treatment in order to shorten the period of suspension of the driver's license. Most important concerning deterrence is the "sanction" of temporarily suspending the driver's license. It can be constructively used to tackle the problems of certain groups of drunk drivers. On the other hand the social norms and social disapproval of drunk driving are more important to guarantee the conformity of possible offenders. Therefore public education and other forms of strengthening behavioral norms against drunk driving have to be stressed.

2. Introduction: Crime policy on drunk driving and deterrent effects of criminal sanctions and measures in Germany

The role of criminal law in the field of social control concerning drunk driving has been discussed intensively in the last few years. Before the German reunification two different approaches had existed: In East Germany a zero tolerance approach with an absolute prohibition of any drinking before driving and the moderate limit of 0.8‰ BAC in West Germany. After the reunification the West German system has been implemented in East Germany (the 0.8‰-limit was introduced only at the beginning of 1993), but with some amendments in 1997 (see below). The following results of an empirical study try to reveal the importance of criminal sanctions and measures in the context of social norms and moral attachment. The question of general deterrence of criminal law interventions is of major interest. Some indi-

cations for general preventive effects of criminal sanctions can be found by looking at the history of West German drunk driving policy and its outcomes.

West German crime policy on drunk driving has changed considerably since the end of the 60ies. The traditional punishment by short term imprisonment has been replaced by fines in combination with the suspension of the driver's license. In 1966 90% of all criminal sanctions for simple drunk driving (without accident or endangering other persons) were prison sentences (63% unconditional). In 1970 85% were fines, only 3% unconditional prison sentences (s. Schöch 1991). The proportion of fines today (1997) is 90%. Only in the case of negligent homicide prison sentences still prevail, however 56% are suspended sentences (probation), only 38% unconditional prison sentences.

Drunk driving with a BAC of 1.1‰ or more is a criminal offence. If the driver causes an accident or a concrete danger to other persons, he can be punished under a BAC of 0.3‰ or more if the accident was the result of alcohol consumption. Between 0.8‰ and 1.1‰ drunk drivers (without endangering other persons) will be sentenced with a kind of fine according to administrative law (*Ordnungswidrigkeit*) and a short term suspension of the driver's license (*Fahrverbot* up to three months). The limit for administrative sanctions (only fines, no suspension of driver's license) in 1997 has been lowered to 0.5‰.

The moderate approach of German criminal policy can be confirmed from the point of view of general and special deterrence and well as of special prevention. The general preventive efficiency can be demonstrated by the numbers of yearly convicted traffic offenders as it has been documented very well for West Germany (s. Kaiser 1970; Schöch, 1973; 1991; 1998).

Table 1: Convicted offenders of drunk driving in West Germany 1960-97

Drunk driving with		1960	1970	1980	1990	1995	1997
Negligent homicide (sect. 222, 315c Crim. Code)	Convicted (n)	366	918	725	287	266	196
	Convicted per 100,000 cars	3.6	5.1	2.5	0.8	0.7	0.5
Negligent bodily injury (sect. 230, 315c Crim. Code)	Convicted (n)	6,153	13,871	11,837	9,152	7,470	6,418
	Convicted per 100,000 cars	60.2	77.8	40.5	24.9	18.4	16.7
All offences with drunk driving	Convicted (n)	46,058	135,287	176,395	154,197	150,888	141,467
	Convicted per 100,000 cars	451	758	604	420	373	369

Source: Schöch 1998: 173 and own calculations

Table 1 shows that with the shift from short term imprisonment to fines and suspension of driver's license the conformity to norms concerning drunk driving has not decreased. The opposite development can be observed. The more lenient criminal policy approach was connected with an increase of the moral attachment to the social norms of refraining from drunk driving. The number of convictions for negligent homicide by drunk drivers decreased since 1970 from 918 cases per year to 196 in 1997 (= -79%), the number of negligent bodily injury caused by drunk drivers dropped from 13,871 cases in 1970 to 6,418 in 1997 (= -54%). The decrease is even more impressive when looking not only on the absolute figures of convicted offenders but relating them to the number of cars. The ratio of convicted offenders per 100,000 cars dropped from 5.1 resp. 77.8 in 1970 to 0.5 resp. 16.7 (-90% resp. -79%). Inter-

estingly in the sixties under the old (more repressive) legislation the opposite development of increasing figures could be observed (s. Schöch 1991; 1998). This demonstrates on the one hand that in general the German crime policy on drunk driving has been a success in terms of general prevention, with the interesting particularity that fines and the suspension of driver's license seem to be more effective than short term imprisonment. The general development, however must be understood in the context of enforcing social norms and moral attachment by public education etc. that probably had a major impact on the described positive development.

For East Germany Krüger, Schöch et al. demonstrate that before the alcohol limit had been raised to a BAC of 0.8‰ the amount of drunk driving had increased until 1992, but since then the number of alcohol accidents steadily decreased (s. Krüger, Schöch et. al. 1998). So the new legislation (from zero tolerance to a moderate permission of alcohol consumption before driving) had no negative impact on drunk driving behavior.

3. Materials and Methods

3.1 Sample

A basic description of the project is to be found in Glitsch et al. (2000, in this volume). The present sample consisted of 310 persons. 163 of them were drunk drivers who have been officially registered by the police in 1998/99. They were compared to 147 sober drivers (according to self-reports in the study of health in Pomerania, SHIP). The average age of the registered drivers was 34,9 years, the one of the sober drivers was 48,9 years. 83.4% of the drunken and 65.3% of the sober drivers were males. The structure of both groups differed also according to social variables (social milieu etc.) which will be discussed in the explanatory model of drunk driving.

3.2 Description of the hypothetical scene

Subjects were asked to remind a scene in which they have been in the conflict of having drunken some glasses of alcohol and worried about the question to drive or not to drive the car. To specify the scene they were told the following: "Please imagine a situation (e. g. pub, birthday) in which you think about driving home or somewhere else. The distance is 10 km. Supposed you haven't drunk any alcohol. What's the likelihood that you drive the car? After the first value (100%) was marked down, the number of alcoholic standard drinks (beer, wine or mix-drinks) have been increased until the person informed the interviewer, that he would not drive with such a number of alcoholic drinks. At that point, a number of incentive conditions were introduced. Social disapproval, accident risk, risk of apprehension were lowered and action alternatives were restricted. Additionally a moral dilemma and money incentives were given. The instructions given to the subjects by the interviewers are summarized in Table 2.

Table 2: Incentive conditions and instructions for the subjects

Incentive conditions	Instructions
social disapproval	"Nobody will notice the bad news of your drunk driving offence. You will be perfectly anonymous."
accident risk	"It is impossible, that any traffic accident happens to you"
risk of apprehension	"You will not be apprehended by the police."
"action alternatives"	"You only have the chance to walk."

combination of all above	all of the four conditions counts
money incentives	“I now give youDM (100 to 1.000.000 in three steps) if you drive the car. You only have to drive the car 10 km” (all other conditions were expected as under real life conditions)
moral dilemma	“You could save the life of your mother or your best friend, if you would drive immediately. Would you drive?” (all other conditions were expected as under real life conditions)

The incentive conditions were given to each subject in the same way. Pronounced statements and motives were held in detail to search for important decision rules or justifying strategies.

3.3 Questionnaire

The questionnaire includes items according to prior research on general and special deterrence of Schöch et al. (s. Schöch, 1985) and Bönitz (1991) in Germany. Items refer to the subject areas of expected severity and estimated adequacy of criminal sanctions and measures, expected risk for apprehension, social and individual disapproval of drunk driving, moral attachment, self reported number of drunk driving, number of apprehensions for drunk driving, effects and meaning (perception) of criminal sanctions and measures.

3.4 Hypotheses

Social disapproval, accident risk, risk of apprehension, action alternatives and other incentives (represented by money gifts) have an impact on the likelihood to drive. Social disapproval and moral attachment play a dominant role in preventing drunk driving. The role of criminal sanctions is expected to be of minor importance in comparison to the risk of apprehension. In case of a perceived high risk of apprehension fines or prison sentences are of low relevance, whereas measures of “improvement” like the suspension of the driver license have some specific deterrent effects. It is assumed that drivers with high moral attachment and high behavioral control will more likely resist from drunk driving.

Only a small number of drivers with high scores on behavioral control and moral attachment should be under (hypothetical) drunk drivers with high alcohol levels (higher than about 0,5‰). It is supposed that drunk driving depends on individual and social disapproval of drunk driving (long time effects), fear for apprehension (persons with fewer moral attachment are more affected).

4. Results

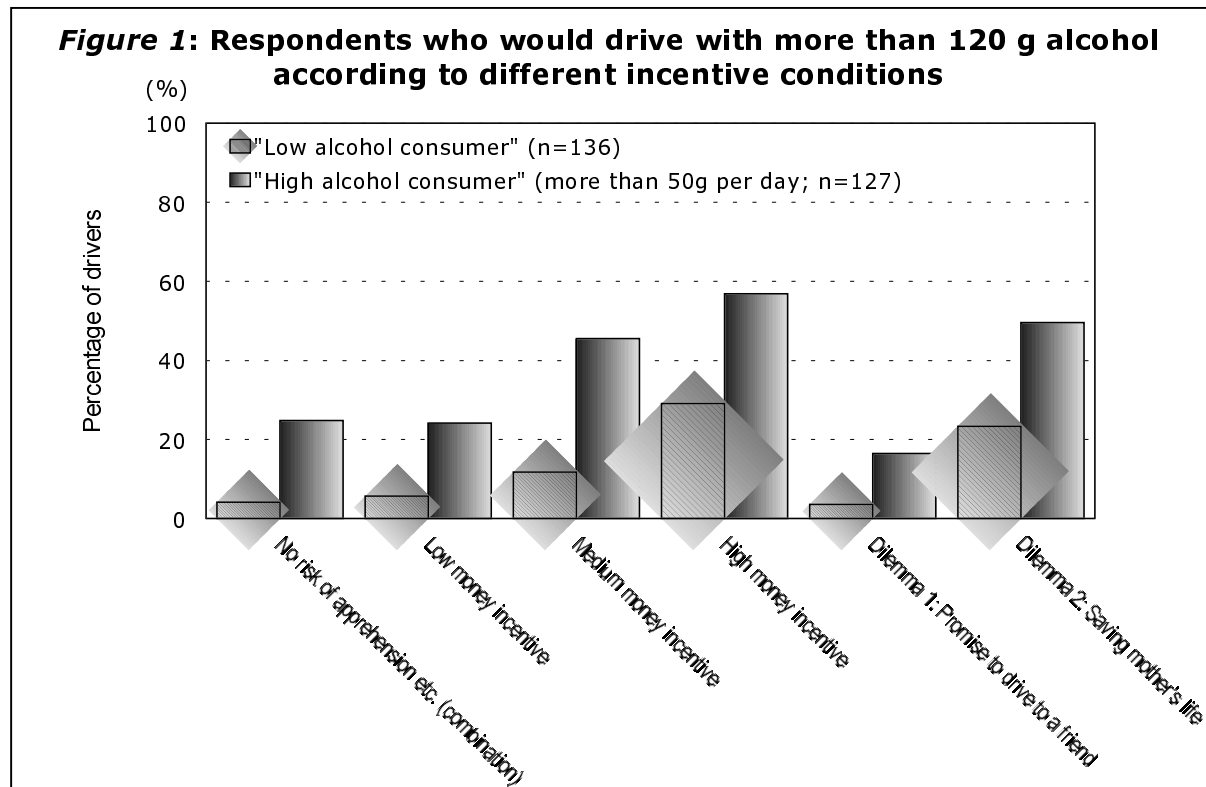
4.1 Alcohol consumption and the role of incentives for drunk driving

Participants were asked to estimate the likelihood of driving under increasing levels of alcohol consumption (0.5‰ to 3.0‰ BAC) and different variations in the context (social disapproval, accident risk, risk of apprehension, cost/benefit incentives).

Two groups have been differentiated: persons with generally low alcohol consumption and persons who admitted a daily average consumption of 50g or more pure alcohol. Figure 1 shows that persons with generally low alcohol consumption are almost never attracted at all to drive with more than 120g of alcohol, even under incentive conditions like that there will be no risk of apprehension, of social disapproval, of causing a traffic accident, of only restricted alternatives to get home (combination of incentives), to have promised a friend to

bring him or her home (Dilemma 1). On the other hand 12% of the habitual “drinking group” would appear to drive even without any incentive. Under the conditions of incentives the ratio increases up to nearly 60%, if a large amount of money would be offered.

Under the dilemma of being able to save the mother’s or a good friend’s life when driving (Dilemma 2), respondents of the “low alcohol consumer group” in about 25% and in the “high consumer group” in about 50% of the cases would drive with this amount of alcohol (> 120g).



Beside the ascertainment that some persons can be seduced to driver under higher levels of alcohol, the group with a generally higher alcohol intake per day shows a much higher vulnerability for situational incentives in applied conditions. According to our assumption that drivers with high moral attachment and high behavioral control will more likely resist from drunk driving, this variation could be explained in terms of behavior control as we found a strong influence of behavior control on daily alcohol intake and drunk driving.

When the level of alcohol consumption was increased the results corresponded to the assumption that the likelihood of drunk driving will not increase under the conditions of stimuli of low risk incentives (incentive combination). Only about 8% of the “drinking group” would be ready to drive with more than 240g of pure alcohol (corresponding to about 6 l of beer). Both groups react the same under the condition of a dilemma: about 50% would drive.

If looking more differentiated on the context variables we found interesting outcomes that correspond to the literature on general prevention (s. Kaiser, 1970; Dölling, 1990; H.-J. Albrecht, 1993; Kaiser, 1996: 258ff.; Karstedt, 1993; Schöch, 1995; 1998). Comparing the importance of different context variables the risk of causing a traffic was the primary consideration not to drive. On a scale from 0 to 6 the mean was 5.19. The second rank took the “risk of being apprehended” (4.03), next important were the existence of only restricted alternatives to get home (only walking, mean: 3.84) and of social disapproval (3.47). On the other hand

this means that any social context variable played a rather important or even very important role.

4.2 the role of criminal sanctions and measures: general and specific deterrence

The respondents were asked about their perception of expected reactions of the criminal justice system. In Germany – as mentioned above (see 2.) – the vast majority of criminal sanctions for drunk driving are fines in combination with the temporarily suspension of the drivers license. The respondents had a quite realistic view of the criminal sanctioning practice. Nearly all of them expected a fine and the suspension of driver license. When asking which sanction would be estimated as the most bothering and burdening one they almost unanimously named the suspension of the driver license

Table 3: Expected sanction and the importance of estimated losses

Expected sanction	n	importance of sanction (mean)	SD
Driver's license suspension in combination with a fine	162	5,34	1,00
Driver's license suspension	12	5,33	1,37
fine	98	4,81	1,27
prison sentence	8	5,62	0,52

Those who expect the suspension of driver's license rank the burden of this sanction with a mean of 5,33/5,34 (on a scale from 0 to 6) very high, no matter if they expect the loss of driver license in combination with or without an additional fine. Those who expect only a fine rank this sanction with a mean of (only) 4.81 ($p < .01$). That means that a fine is a noticeable sanction but not estimated as severe as the loss of the driver's license. Again there is clear evidence that the suspension of the license is felt as the most severe "punishment" drunk drivers would experience (the 8 persons who expected a prison sentence ranked this sanction with a mean of 5,62, but the absolute number is too small to interpret this result).

In relation to this sanction which according to German criminal law is not a formal punishment but a "measure of improvement and security" (*Maßregel der Besserung und Sicherung*) the penalty of a fine does not play an important role (prison sentences realistically were almost never put into consideration).

The perceived severity of expected sanctions varied according to the fact if the respondent had been registered for drunk driving in the last year or not. Those with police contacts ranked the expected sanction with an average of 5,40, those who had committed a drunk driving offence and had not been apprehended ranked it with 4,69. The experience of reactions of the criminal justice system apparently has some impact on offenders, however "what works" and to what extend will be discussed later.

Research on general and specific deterrence emphasizes the risk of being apprehended, the certainty and severity of punishment and the social context variables like social disapproval of the family, neighbors, peers etc.

In general the likelihood of drunk driving decreases with the perceived increasing risk of apprehension. A first important result was that more than two thirds of the total group (68.4%) would not drive anyway or only in case of emergency. Of the remaining 112 persons 50%

would not drive while impaired when the risk would be 1 : 64 or greater. If the risk would be 1 : 8 or greater only 17.9% (n = 20) of them would drive.

The expected likelihood of being apprehended had a surprisingly small influence on the future drunk driving. The correlation coefficient was only $r = -.12$ (correlation coefficients according to Spearman; $p < .05$). Considering the *severity of punishment* the amount of the expected fine does not play any role for the likelihood of future drunk driving ($r = .05$, n. s.). These results in general are conform to the deterrence research, although the low deterrent effects of the risk of being arrested are astonishing.

Much stronger effects can be seen when looking at variables of social disapproval. The more disadvantages relating to vocational training and the job (risk of loosing the job training and/or workplace) are anticipated the less persons seem to get involved in future drunk driving ($r = -.31$, $p < .001$). The social disapproval of persons to whom strong social bonds can be presumed is of most importance. Negative reactions of the mother correlate with $r = -.24$ ($p < .01$). As expected the influence of friends and peers is even stronger: negative reactions of friends were correlated with future drunk driving with $r = -.41$ ($p < .001$).

Those respondents who declare a greater readiness of future drunk driving express less fear of the expected punishment ($r = -.12$; $p < .05$). This could be an indicator for the rather limited role of the criminal justice system for those who show some predisposition for drunk driving. On the other hand moral attachment to the norm not to drive while impaired is of exceptional importance. This could be shown already by the fact that more than two thirds of the total poll would not drive anyway (i. e. a low risk of apprehension would not have any incentive meaning, see above). In accordance with that result those respondents that took drunk driving as a more serious offence showed a far less risk of future offending ($r = -.45$; $p < .001$).

The value of moral attachment can also be demonstrated by the following results: we divided our sample according to persons who declared to avoid drunk driving primarily because of the risk of apprehension and persons who primarily emphasized the risk of causing accidents and possibly injuring other persons (risk sensitive group). The first group reported an average of 4,71 cases of drunken driving for the last year, whereas the risk sensitive group reported less than half of them (average: 2,17). The risk sensitive group can be generally described by high scores relating to moral attachment.

5. Conclusion

The results of our study confirm prior general deterrence research and the only limited importance of the criminal justice system. On the one hand the existence of penal sanctions has contributed to the remarkable decrease of drunk driving offences in the last 30 years in West Germany, on the other hand this could be achieved by a moderate approach without severe punishment. Fines and the temporary suspension of the driver's license have proved to be adequate and sufficient reactions. The present study gives good arguments even to restrict criminal sanctions only on the suspension of the license and to replace the additional fine by a warning eventually combined with a treatment obligation. The vast majority of respondents accepted the social norm of not driving while impaired. This holds true even under incentive conditions. Only a small group of persons is in danger of drunk driving and can be seduced under incentive conditions. This group can, however, be impressed by penal sanctions like the suspension of the driver's license, as they do consider the risk of being apprehended. The "majority" group of persons with generally low alcohol consumption and low dispositions for drunk driving has high scores on moral attachment and therefore primarily considers the so-

cial and to a lesser extent penal consequences (this is conform with social bond theories and the theory of self control, s. Gottfredson and Hirschi, 1990).

Concerning crime policy the proposal is to replace fines by penal warnings in combination with counseling and – if necessary – treatment in order to shorten the period of suspension of the driver’s license. The “sanction” that is most important concerning deterrence is the suspension of the driver’s license. It can be constructively used to tackle the problems of certain groups of drunk drivers. On the other hand the social norms and social disapproval of drunk driving are of major importance. This again proves that social control strategies from outside the criminal justice system (treatment, public education, and civil law) are “much more promising than the usual impulse merely to throw more police and incarceration at a problem” (Jacobs, 1989: 200).

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