

Can we rely on Deterrence Theory to motivate safe road user behaviour?

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Abstract

Influencing discretionary driver behaviours in Australia has relied heavily on the coercive strategy of deterrence. This paper takes as its starting point the use of deterrence in influencing compliance with road laws.

The paper begins by recognising the limits of deterrence and indicates that behaviour is influenced by many factors beyond deterrence. The notion of deterrence is defined and explored leading to the proposition that if motorists do not refrain from offending out of fear of consequences they are by definition not deterred. 'General' and 'specific' deterrence are defined and shown to be the same mechanism but applied to different populations. The targets for 'general' deterrence are not the general population of motorists but those offenders or prospective offenders who can be influenced through fear, i.e. are likely to offend and likely to be deterred by the threat of punishment.

The main focus of the paper is on the failure of the road safety professionals, including police, to place more emphasis and resources on influencing offenders' and prospective offenders' perceived likelihood of detection.

Deterring would-be offenders relies heavily on convincing them as to the likelihood of being detected and punished. Examples of the lack of enforcement are presented and the benefits of enhancing enforcement are explored. The paper concludes with a plea for all of us to convince the public, the politicians, and treasurers to agree to consider increasing the level of resources specifically available for traffic safety enforcement and publicity aimed at changing drivers' perceptions regarding the likelihood of detection and beliefs regarding the incidence of other drivers speeding (the descriptive norm).

Introduction

Deterrence theory has been the dominant paradigm underpinning behavioural control in road safety around the world even though we know little about the psychological mechanisms involved regarding the effect of enforcement on road users behaviours.

No attempt will be made to defend the relevance, or lack, of deterrence theory. Other researchers have voiced their concerns about the acceptance and continued reliance on deterrence theory (Harrison 1998, 1999). Harrison argues that normative rational decision-making models such as deterrence theory have been discredited and replaced by more complex naturalistic models. Watson (2004) argued that unlicensed drivers' behaviour supports an extended deterrence model which allows for avoidance of detection rather than deterring from offending. The writer (Elliott 1992, 1993, 1999, 2001) also has questioned our pre-occupation with coercion models of influencing safe behaviours suggesting the need to consider influencing both descriptive norms and injunctive (moral) norms if we are to truly commence down the road to voluntary compliance with key road laws and related behaviours.

Rather than explore the pros and cons of deterrence theory or other possible behaviour change theories such as done superbly by Fylan et al (2006) the current paper takes at its starting point the notion of *limited* rationality;

“..evidence from our study suggested that most drivers do attempt, at least some of the time, to weigh up the opportunities, costs, and benefits of offending, although like other research it largely supported the operation of limited rather than full rationality.” (Corbett & Simon 1992, p546)

Additionally, in relation to speeding, the evidence from the UK studies (summarised in Fylan et al 2006), Belgian studies (De Pelsmacker & Janssens 2007) and Australian studies (Elliott 2001) choosing to speed or not speed is influenced by a number of factors including what other drivers do or are doing at the time (descriptive norm), personal norms and moral standards, ease or difficulty to choose to speed or not (self-efficacy or perceived behavioural control), attitudes towards speeding, habit, likelihood of positive outcomes if not speed (response efficacy), etc. McKenna (2005) reminds us *“Breaking the speed limit is endemic at this point in time and no simple factor accounts for the majority of speeding...habitual behaviour may play a role...only 29% indicated they were concentrating totally on their driving”* (p.101)

This paper will focus on one aspect of deterrence theory and of deterring would-be offenders, namely enforcement rather than explore the many other possible influences on behaviour referred to in the preceding paragraph. Further, the role of sanctions for offending (penalties) will be referred to but not considered in any detail.

Harrison (1998) whilst critical of the “Deterrence Model” points out:

“It is important at the outset to clarify the distinction between the Deterrence Model and deterrence as an outcome of high levels of enforcement and supporting public education. The Deterrence Model is one possible way of accounting for the deterrence (or behaviour change) resulting from the enforcement activity. Discussion or criticism of the Deterrence model does not negate the empirical reality there is some psychological process which results in behavioural changes contingent on enforcement activity.” (Harrison 1998, p2) emphases added.

Understanding what is meant by Deterrence

We would all agree that it is better to prevent than punish and this is the basis of deterrence theory. Deterrence involves the threat of punishment via some form of sanction. Deterrence is a way of achieving control through fear. If motorists do not refrain from offending out of fear of consequences they are, by definition, not deterred.

Deterrence, in general, is the control of behaviour that is effected *because* the potential offender does not consider the behaviour worth risking for fear of its consequences. Deterrence is only one of a number of compliance–gaining mechanisms.

How Does Deterrence Operate?

The mere presence or introduction of a sanction may hinder or prevent an offence in a number of different ways:

1. Knowledge of the sanction affects perception of the cost of offending so that compliance is seen as more attractive than offending;

2. Knowledge of the sanction, coupled with a belief in the sanctity of law or unquestioning legal authority, may be sufficient for compliance;

3. Sanctions may also have moral-educative and habituating effects so that they may be causally involved in the generation of moral beliefs and inhibitions, and laws may be obeyed purely by force of habit;

4. The implementation of sanctions, rather than the mere threat may, reduce offences by incapacitating potential offenders, reforming them or by creating via stigmatisation of the offender, informal pressures to comply.

Deterrence refers to some combinations of these different mechanisms but for strict usage (1) above must always be present or else the compliance gaining strategy is something other than deterrence. Deterrence in the literature, and in practice, is usually only in reference to a legal sanction but non-legal sanctions such as fear of ostracism or the disapproval of others are also capable of acting as deterrents.

Three Different Effects

Deterrence as a preventive measure has three different sorts of effects:

- The deterrent effect *-intimidation*;
- The strengthening of moral inhibitions *-education*; and
- The stimulation of habitual law abiding conduct *-reinforcement*.

Deterrence does not motivate solely by fear. There is a general acceptance that the threat and imposition of the punishment can have a motivating influence apart from the creation of fear, through an expression of social condemnation of the forbidden act.

Thus the law is not only a price tariff it is also an expression of society's disapproval of a particular act and this disapproval may work in subtle ways to influence behaviour. These effects can be described as: the moral influence or the educative, the socialising, the attitude shaping, the norm strengthening or reinforcing influence. In essence, deterrence has both a fear component and a moral (educative) component.

Another almost never discussed aspect of deterrence is its habituating effects. Much of law-abiding conduct is habitual and the threat of punishment plays a role in this habit formation. The responses of drivers towards traffic signals or to restraint usage are out-standing examples. For a habit to be established there must first be compliance based upon other sources, which may be fear or respect for the law; the habit is eventually formed through repetition of the law-abiding conduct.

Undeterred Non-compliance

Impulsive behaviour can be described as *undeterred non-compliance* and impulsive acts would appear not to be influenced by deterrents. *Compulsive behaviour* is also unlikely to be deterred and can be classified as *undeterred non-compliance*. Here the offender is usually aware of the presence of fear but is overcome by other feelings. Thus the risks and consequences are insufficient to deter compulsive behaviour. It is possible that compulsive behaviour can be delayed or transferred to another place through fear of consequences.

Beyond impulsive and compulsive behaviour, there are other forms of *undeterred non-compliance* that arise because the deterrent effects are not sufficiently deterring (lack of

enforcement and/or weak penalties). These include being unrealistically optimistic about offending; realistic risk-taking (part of the job), penalty of no real inconvenience, avoiding detection and punishment. A final category of *undeterred non-compliance* are those who commit an offence as a protest even though the penalty is almost certain and unpleasant. This category could be called '*defiant non-compliance*'.

Thus people are most open to being deterred by threat of punishment when they are not behaving morally, impulsively, compulsively, defiantly, despairing or optimistically.

Targets for Deterrence

Deterrence is likely to impact on individuals to varying degrees depending on; age, sex, ethnicity/race, education, social class, personality, degree of commitment to the moral norms of society versus conflicting norms of sub cultures, attitudes toward life and towards risks, degree of acceptance of authority, degree of isolation or alienation from social system, past experience, etc. Some of these characteristics can be classified as follows:

| <u>More likely to be deterred</u> | <u>Less likely to be deterred</u> |
|-----------------------------------|-----------------------------------|
| Pessimists | Optimists |
| Future-oriented | Present-oriented |
| Risk avoider | Risk-taker |
| Reflective | Impulsive |
| High self monitor | Low self monitor |
| | Punishment avoiders |

For *specific deterrence*, the target is those who have already offended and thus been subject to punishment.

For *general deterrence*, the target is the general population of motorists since one key effect of general deterrence is to influence norms and the socialisation process. However, with respect to the *threat of punishment* the targets for *general deterrence* are "would-be offenders" or "prospective offenders". The target however really is somewhat narrower: it is only those who can be influenced through fear, i.e. are likely to offend and likely to be deterred by the threat of punishment.

Thus two groups stand out as not being targets for deterrence:

- (1) Those motorists for whom deterrence is not necessary and who are unconsciously deterred by the mere fact of the law's disapproval and who fear disgrace of being caught more than they fear the punishment; and
- (2) The undeterrable who cannot be deterred by the threat or by the experience of punishment.

"General" versus "Specific" Deterrence

'*General deterrence*' signifies the effects of threat of punishment and that threat encompasses both the risk of detection and the severity of the sanction. '*Special*' or '*specific*' deterrence signifies the effects of actual punishment on the individual offender. "Specific" and "general" deterrence have the same goal. The difference is *general* relies on imagination and *specific* on memory of the experienced sanction. *General* and *specific* deterrence are not different mechanisms, but the same mechanism applied to different populations.

The general deterrent effect of a sanction is the deterrent effect that a sanction has on a potential offender who has not personally had the sanction inflicted on them before, i.e. the essence is the threat not the experience of the sanction.

The special (specific) deterrent effect of a sanction is the deterrent effect which a sanction has on a special offender who has personally had the sanction inflicted on them before, i.e. actually experienced the sanction.

Logically *specific deterrence* should be stronger than *general deterrence* since the actual experience ought to be more powerful than the theoretical knowledge of sanctions or vicarious punishment. The relatively high rate of repeat offenders, however, challenges this hypothesis and suggests that there are weaknesses in the application of the theory in practice including susceptibility to detection and severity of punishment.

Specific deterrence is based on the assumption that people will learn from their own experience. Thus offenders, when punished, will learn from the negative experience of the punishment and this will deter them from further offending.

Deterrence assumes that the motoring public knows which actions are prohibited by law and have some idea about adversiveness of the penalties attached to the offences. A specific or accurate knowledge is not required. What are required for deterrence are an awareness of what behaviour is not legal, a belief in the probability of detection and a belief that the sanction is severely unpleasant.

Essential Ingredients for Deterrence

Three components in particular influence the deterrent effect of punishment: severity, certainty and swiftness. Of the three certainty is the most important and swiftness least important but all three interact and complement each other.

Certainty of punishment

Criminologists, in general, argue that the effectiveness of a deterrent is derived less from its severity than from its certainty. Most studies show that greater certainty of punishment is associated with lower offence rates. Therefore it is better to improve law enforcement than increase penalties. Publicity can enhance the certainty, especially indicating that people are being caught and punished. If punishment is a deterrent then a wide use of it would be more effective than scarce or sporadic use. Frequency of punishment is invariably related to levels of detection.

Severity of punishment

In general, the public, including legislators, believe that the severity of a punishment is relevant to its degree of deterrence in some sort of mathematical equation. Thus if penalties work in one situation they will work in all; if some people are deterred by threats then all will be; if doubling the penalty works then trebling it will work even better. However, the law of diminishing returns applies so that there is a critical point in which increasing punishment has no effect on the rate of offending. Some researchers argue that it can even increase offending rates because detection may go down because the penalties are believed to be too harsh.

Swiftness (Celerity) of punishment

The basis of the evidence for swiftness is essentially the mechanism of conditioning. Thus, if the actual application of the threat is to be associated in the minds of potential offenders with

the offence then such infliction of punishment has to be prompt and take place immediately or a short time after the offence has been committed. The mechanism involves conditioning so that stimulus and response are closely and invariably related. The trouble is most offenders are not punished every time they offend.

Deterrence is an unstable process

Homel (1986) refers to the dynamic nature of deterrence representing it as a “Hole in the bucket model”. In his model the pool of those currently deterred is unstable and there are many leaks whereby some would-be offenders are subject to a wide range of pressures to not comply such as peer pressure, successful offenders, lack of exposure to detection, etc. Some successful offenders who have leaked out of the bucket or not made it into the deterrence bucket remain un-deterred because they avoid punishment by avoiding detection. Stafford & Warr (1993) argue that offenders whose experience is limited largely to avoid detection and therefore punishment come to believe they are immune from being caught or punished. Thus unless enforcement is maintained at high levels deterrence will be undermined by offenders frequently experiencing punishment avoidance as in Watson’s (2004) study of unlicensed drivers which in Homel’s leaky bucket represent those experiencing “successful episodes” of avoiding detection.

The bucket needs to be constantly topped up to maintain a level sufficient to effectively act as a deterrent on a wide scale or else the leaking bucket will be so low as to have no deterrent effect. The deterrence bucket is in constant need of being topped up by enforcement and publicity. Enforcement is essential to ensuring the pool of deterred motorists remains at a high level. Another mechanism for enhancing the effects of deterrence is publicity regarding the increased likelihood of detection and the seriousness of penalties, but the latter needs to raise the moral issue, i.e. potential harm to others.

Enforcement: strong or weak force in deterrence?

This paper maintains that enforcement is potentially a strong force but, in practice, it is a weak force. For sanctions to serve as an effective deterrent ‘threat’ (general deterrence) or an effective deterrent ‘experience’ (specific deterrence) the would-be offender must hold a belief that there is a high likelihood of being detected if they were to offend and a belief that the sanctions will not be pleasant.

The higher the perceived likelihood of being detected the greater the deterrent effect of the sanctions. Most, but not all, motorists on being certain of being detected were they to offend, would be deterred from offending assuming they expect that the sanction will be unpleasant.

An example of near certainty of detection occurs in NSW with respect to fixed digital 24 hours speed cameras which are sign-posted so as to warn drivers of their existence and signpost the legal speed limit. The combination of certainty and communication of enforcement has virtually eliminated excessive speeding at the sites and moved the average speeds back to the posted speed limits. As an aside, the fixed digital 24 hour speed cameras whilst a very cost-efficient black spot treatment, are counterproductive in achieving behaviour change since most motorists reduce speed at the sites and many speed up immediately passing the sites. Indeed it sends a message *‘it’s okay to speed but not here’*. These behaviours have also been documented by other researchers (Corbett, Simon & O’Connell 1998, p.27).

The importance of detection cannot be overstated. It the thesis of this paper that as currently practiced in Australia detection is a 'weak force' because insufficient resources and priority is given to traffic law enforcement. Even within the Police forces traffic safety is not given enough priority to maintain a level of traffic safety enforcement sufficient to act as a deterrent for a large number of would-be offenders. This is not police bashing. It is the opposite. Many jurisdictions are under-resourced in relation to population growth and or the growth in vehicle numbers.

Numerous studies attest to the ability of enforcement to influence behaviour. In the *Deterrence game* Corbett, Simon and O'Connell (1998) using high speeding drivers concluded;

"... drivers' frequencies of exceeding the 30 mph limits by more than 10mph would be reduced significantly by imposing higher penalties, or by increasing the risk of being caught, or by a combination of the two." (Corbett et al 1998, p.24)

Fylan et al (2006) review of effective interventions for speeding motorists argues the need to distinguish between the majority of drivers for whom speeding is moderate and those who adopt speeds that are considerably higher than the norm. They conclude that road safety campaigns containing risk information and speed enforcement strategies are useful for deterring drivers from speeding; these same strategies may be ineffective in tackling the worst offenders.

"Drivers who speed believe there is a lower chance of being caught than those who do not speed (Guppy 1993), and the less chance drivers think there is of being caught, the faster they drive (Parker 2002; Rothengatter 1998; Stradling & Campbell 2003). For this reason, an overt police presence can be effective in reducing the number of drivers who speed (Holland & Conner 1996; Kanellaidis et al 1995). Hence threat appraisal is important in drivers' speed selection". (Fylan et al. 2006, p.28)

Fylan's (2006) review also concluded that mass media messages with an enforcement theme had the greatest impact on intentions to speed.

Perceived versus Actual Risk of Detection

For a sanction to be effective as a deterrent the potential offender must believe that there is a risk of being caught. If the perceived risk of detection is very low, so too will the expected punishment be low, and thus have little or no impact on their behaviour. Conversely, if the perceived probability of detection is high, and higher than the actual probability, then the deterrent effect of the sanction will be enhanced.

Thus, countermeasures which increase both the actual and perceived probability of detection enhance the deterrent effect of sanctions. Publicity is one such countermeasure.

Actual levels of enforcement would appear to be as influential as a deterrent more so than perceived levels of enforcement. Riley (1991) carried out a study using a variety of alcohol testing/screening techniques in high and low enforcement areas throughout the United Kingdom. He found that drivers in high enforcement areas were less likely to drink and drive than drivers in low enforcement areas, but drivers across both high and low enforcement areas made similar assessments of the risk of detection. What made the difference in the high enforcement areas was that the enforcement in the high enforcement areas was backed by

substantial media coverage, and this in turn would appear to alter social attitudes to the behaviour (drink driving).

Rothengatter (1991), in generalising from studies which have attempted to influence speed choice, argued that obtrusive police enforcement that does not increase the objective probability of detection does not seem to affect speed choice or attitudes towards speed choice. But police enforcement that increases both the objective and subjective probability of detection does increase compliance, but does not change the motivations, attitudes or perception of the safety of the road.

Hatfield & Job (2006) report that a substantial proportion of three samples of motorists (metro, regional and rural) rated the likelihood of being detected when exceeding the speed limit as *unlikely* (Table 12, p.42).

How much extra policing is required to influence subjective probability of detection?

Very little is known about the way potential offenders arrive at subjective probabilities of detection. Everyday experience suggests:

- For ordinary risks, people do not quantify them in an arithmetical fashion, but use rough categories, e.g. high, low, medium, and negligible.
- Their categorisation is influenced by incidents which make a strong impression (e.g. sighting police, word of mouth).

Attempts to achieve modest increases in actual detection rates, though they can be justified on a variety of grounds, may not be sufficiently effective to achieve a deterrent effect. It has been suggested that an increase of more than 20 per cent is probably required to make potential offenders re-categorise the risk.

With respect to speeding, a decade of research at the Traffic Research Centre in the Netherlands has indicated nothing can beat intensive police surveillance but “when less than 1:25 offenders are stopped and fined, policing does not influence speed choice and merely serves as additional taxation.”(Rothengatter 1996, p.841).

Arberg (1997) cites a report of the effects of three years of enforcement in Sweden of speeding behaviour where an increased level of enforcement to about 3 to 5 times the normal level had a significant effect on perceived probability of detection, drivers’ speeding and traffic accidents. He also cites similar effects in relation to drunken driving. In his words “*the effects of enforcement on driver behaviour are well established*” (p.400).

The ‘Halo’ Effect of Enforcement

Enforcement has the primary objective of ensuring compliance with the regulations, and a secondary objective of detecting violators. Deterring traffic violations ensures that traffic flow is safer and more efficient, the presumption being that it is not in the driver’s own interest to violate any code. The detection and apprehension of offenders has the ancillary beneficial effect of bolstering deterrence.

It is this bolstering effect which could be called the ‘halo’ effect of enforcement on deterrence. A key role of enforcement is not solely to influence the person who is detected (specific deterrence) but also to act as a general deterrence to potential offenders who see the enforcement. Harrison and Pronk (1998) argued that this halo effect was greater for deterring drink-driving than for speeding and that to deter speeding requires experiencing detection rather than witnessing it, i.e. deterring speeding requires high levels of detection. In support of Harrison & Pronk speeding is undertaken routinely by a large majority of drivers at some time whereas drink driving even at its highest levels pre-RBT in the 60’s it was not undertaken routinely by a majority of drivers. Consequently, beliefs regarding normative behaviours and the possibilities for harm differ substantially between speeding and drink driving.

Citing numerous studies, Åberg (1997) indicates that “*It is well known that visible surveillance of driver behaviour decreases the rate of traffic violations*”.

Increased enforcement visually leads to an increase in the perceived probability of detection and this in turn can influence driver behaviour. The halo effect of visible enforcement can be enhanced also by publicity, thereby optimising the general deterrent effect of enforcement. What is not known is how long does visible enforcement effect perceptions of likelihood of detection and does this vary depending on the frequency of seeing or experiencing enforcement? It is the writer’s hypothesis that in an environment in which enforcement is rare (the norm on much of our road system) the halo effect is very short lived but would be substantial in and for instance in an environment where enforcement is expected and actually takes place.

What is the reality?

Researchers at CARRS-Q point out that:” *Regular speeders reported a lack of awareness of, or attention to, speed limits, appearing to base travel speeds on individual preference and convenience, rather than on legal requirements...described various strategies to avoid detection (e.g., camera site learning) and speed-related penalties (e.g., fraudulent demerit point purchase, defiance of licence suspension*”. Fleiter, Lennon & Watson (2007). Thus for regular speeders, detection is far from certain, i.e. it can be avoided (electronic or in person) or is a very unlikely occurrence.

Some examples from my research experience

(1) Enforcement of liquor licensing Victoria 2003

When examining about 100 or so Coroners’ reports relating to intoxicated pedestrians it was clear that many of the fatalities could have been avoided if those serving the intoxicated pedestrian had ceased serving them. In many instances they were frequent or regular patrons and who normally consumed a considerable amount of alcohol. This led me to enquire about enforcement in relation to serving intoxicated persons.

The Victorian Police provided data over three financial years (July 1, 1999 – June 30, 2002) with regard to the Liquor Licensing Victoria Liquor Infringement Notice System. The following table lists all offences relating to licensees over the three years. Considering that there were over 10,000 licensed establishments the data confirms the claims made thus far by this report.

Each year approximately ten infringement notices are issued for supplying liquor to an intoxicated person, i.e. less than one a month across all Victoria! The incidence of liquor infringement notices being served to licensees for permitting drunk/disorderly persons on licensed premises is of the order of one a week (or slightly more often in 2001-2) across all of Victoria.

This data suggests either Victoria doesn't have any problems with excessive alcohol consumption at licensed premises or has an extremely low level of enforcement.

Even if the widest possible picture is examined and one assumes that codes 6008-6010 have been used rather than the more specific codes 6120-6122 the number of infringements is still only approximately 5 per week across 10,000+ licences. The likelihood of detection for serving an intoxicated person is close to zero.

Liquor Licensing Victoria Liquor Infringement Notice System Offences Relating to Licensee

| Offence | Code | Fine | FY 99-00 | FY 00-01 | FY 01-02 |
|---|-------------|------------|-----------|-----------|-----------|
| <u>Sell/dispose</u> (of liquor other than in accordance with licence) | 6008 | 2000 | 67 | 78 | 82 |
| Allow sale (etc) | 6009 | 200 | 41 | 28 | 23 |
| Allow consumption (etc) | 6010 | 200 | 136 | 100 | 102 |
| Provide liquor other than at licensed premises | 6011 | 200 | 8 | 3 | 2 |
| Supply liquor to intoxicated person | 6120 | 200 | 9 | 10 | 11 |
| Permit drunken/disorderly person on licensed premises | 6122 | 200 | 50 | 52 | 72 |
| Supply liquor to underage person | 6123 | 200 | 20 | 18 | 19 |
| Permit liquor to be sold to under age person | 6124 | 200 | 4 | 6 | 8 |
| Liquor sold to underage person | 6125 | 200 | 9 | 2 | 2 |
| Supply liquor to underage by employee | 6126 | 50 | 13 | 4 | 4 |
| Permit underage person on licensed premises | 6127 | 200 | 45 | 58 | 47 |

The importance and benefits of a far greater level of enforcement have been noted in relation to the underage-drinking problem. Wagenaar & Wolfson (1994) found that 2 of every 1000 occasions of underage drinking result in an underage arrest whilst only 5 in every 100,000 occasions result in action against an alcohol retailer. Scribner & Cohen (2001) argue that: *“there is reason to hypothesise that deterrence strategies targeting alcohol retailers would be more effective than targeting underage youth.”* (Scribner & Cohen, 2001, p.858).

The latter two authors report a study where a relatively small intervention effort produced a sizeable result: baseline 16 out of 143 complying; at time 1, 57 out of 143; at time 2, 30 out of 143. The rates of compliance were much higher for outlets receiving a citation. The authors conclude:

“... enforcement of liquor laws can increase compliance with minimum drinking age laws and that the effect can be magnified by media advocacy associated with an enforcement effort. We also conclude the effects of enforcement are short-lived, requiring ongoing enforcement efforts in order to be an effective prevention strategy.” (Scribner & Cohen 2001, p.865).

Analysis of the Liquor Licensing Victoria Liquor Infringement Notice system confirms the above, namely licensees receive less infringements and fines than do underage drinkers (many of whom falsely obtain proof of age).

Jeffs & Saunders (1983) reported two studies carried out in two English coastal holiday towns. The studies are briefly included here because they show what can be achieved by enforcing the existing liquor licensing hours. The prosecution of licensed premise operators for selling alcohol to intoxicated people is extremely rare not only in Victoria but elsewhere.

The first study (Jeffs & Saunders 1983), called the “enforcement study”, and focused on the effect on the incidence of public order arrests of a strict enforcement of the licensing law. It was an evaluation of a deliberate alteration of police practice with regard to the supervision of licensed premises in an English seaside resort during summer. A control town was also used with no changes in policing practices. In the second study, the “arrest study”, all persons arrested were asked by the station sergeant as part of the arrest process whether they had been drinking in the four hours prior to the offence leading to the arrest. This would then allow data on offence type to be classified as alcohol or not alcohol related.

From the “arrest study” the experimental town showed that, between 10pm to 6am, 92.7 percent (605) of arrests had an alcohol factor during May-September. Jeffs & Saunders (1983) argue that *“the association between alcohol and crime is a very real one and raises questions about the responsibilities of alcohol retailers and the police in the enforcement of the existing licensing law.”* (p.72).

The “enforcement study” involved the introduction of a new policing practice with regard to the supervision of licensed premises in the harbourside area, with the greatest concentration of public houses and licensed clubs. The policing of the resort in the summer months had previously been undertaken by ensuring the presence of additional police officers whose prime concern was to deal with outbreaks of public disorder as they occurred. This involved alteration of shift systems, overtime working and the creation of a seasonal task force. In May of the year of the new policy, the seasonal Task Force Commander designate, together with a police sergeant, visited all licensed premises in the harbourside area considered to be potential sources of, or targets for, public disorder. In every case the licensee was told that for the forthcoming summer the police intended to pay regular and frequent visits to the premises during permitted opening hours. These visits had two main aims – (I) the prevention and detection of offences relating to under-age sales and consumption and (ii) the prevention and detecting of offences relating to drunkenness on the premises. The licensees were reminded of their responsibilities under the licensing legislation and full co-operation in facilitating the observance of the law was agreed between the licensees and the police.

The promised attention then occurred throughout the summer months. Visits were normally made by two or three officers in uniform, who very visibly entered licensed premises, spoke to bar staff and conspicuously checked for under-age drinking or the presence of persons the worse for drink. The occurrence of these visits was not such as to provide a regular routine, and varied from premises to premises, but most were visited at least two or three times per week. It was deemed important right at the outset that such visits should be conducted in an amicable manner and that each time a word or two was passed with bar staff. Another feature of the visits was the thoroughness with which the premises were checked for transgressions of the law. This was to bring home to bar staff and patrons that good orderly conduct was essential.

To gauge the effect of this supervision the rates of recorded crime and public order offences for the summer were compared with the summer preceding the change in policy practice and the following year when policing reverted to its normal practice.

Given the resort nature of the town under investigation, any drop in overall crime and public disorder rates may well have been due to a fall in the number of visitors to the resort, or other extraneous variables, such as the weather. In order to allow for these factors, a control town was selected which met the criteria of being within the same tourist region (and hence also likely to be affected by change in affluence or weather) but where no such specific steps to supervise licensed premises were taken.

In the year of the altered policing practice, all arrests in the resort town decreased by 20.9% and rose by 20.3% in the year following. The figures for the control town remained constant for the first two years and then rose by 25.7% in the third year. Further, alcohol related crimes decreased to a significantly greater degree than did non-alcohol related crimes but only in the experimental town.

Since alcohol related offences represent a disproportionate amount of police and court work the authors' state:

"If as the enforcement study suggests, a comparatively minor alteration in police practice, albeit perhaps a major change in police policy, can have a substantial influence upon this apparent disproportionate impact of alcohol, then it behoves such agencies to consider seriously their current attitudes and practices." (Jeffs & Saunders, 1983, p.75)

(2) Hunter Restraint Use Study 2001

Whilst the official RTA data suggests wearing rates are very high (97%) throughout NSW other data collected in the Hunter challenges these very high rates suggesting that wearing rates are somewhat lower. For example, in Scone, for all occupants it was 85%, for solo drivers 95%, but only 92% for drivers with a passenger.

Country people in particular are quite likely to not wear their seat belts when traveling short distances having decided such situations are 'safe' from accidents or detection. On the other hand 'always' wearing a restraint is likely on higher speed roads, and metro areas where both safety and enforcement are seen as salient issues.

The new severe penalties applying to drivers and all unrestrained passengers, have the potential to influence 'always' wearing a restraint. This potential however is unlikely to be realised if detection is not deemed to be possible or likely.

The introduction of the new penalties combined with Double Demerit points influenced wearing rates whilst Double Demerit points operated. Outside of Double Demerit point's periods, country people act as though the likelihood of detection is almost zero especially if they stay off the highways.

Safety is not seen to be an issue in the circumstances in which non-use occurs because such situations involve the local area, small travel distances, relatively slow speeds, and a lack of traffic. The prevailing belief was that individuals should have the right to choose to wear or not wear. The new penalties are challenging this belief. The notion that an unrestrained

passenger could severely injure restrained passengers is potentially also able to challenge beliefs about the right of individual choice.

Forgetting not to wear is somewhat rare or occurs only for part of any journey. Mostly it is a conscious decision not to wear.

What about enforcement?

- The Highway Patrol issued, in any one of the three years, the bulk of TINS for non-restraint use:

| | |
|-------|-----|
| 1998: | 94% |
| 1999: | 92% |
| 2000: | 90% |

- The Highway Patrol issued a declining number of TINS for non-restraint use over the three years with an initial dramatic decline in 1999 and a much smaller decline in year 2000

| | |
|-------|-----------|
| 1998: | 2094 TINS |
| 1999: | 1352 TINS |
| 2000: | 1137 TINS |

- The General Duties police issue only a very small number of TINS for non-restraint use and this small number remained constant over the three years.

| | |
|-------|-----|
| 1998: | 123 |
| 1999: | 124 |
| 2000: | 120 |

- On a weekly basis all General Duties police combined (i.e. in total) issued between them less than 3 TINS per week for non-restraint usage versus the Highway Patrol who issued between the combined total of Highway Patrol officers 22 per week in year 2000 , versus 40 per week in 1998.

The likelihood of being detected unrestrained, by General Duties police, is close to zero. Motorists are much more likely to be detected by the Highway Patrol which presumably focuses on the Highway system.

Discussion with senior police indicated that General Duties police have as a primary role to attend to a specific call (“job”) and if they stop to issue a TIN for non-restraint use they are likely to be late and to be criticised. The data would suggest that restraint non-usage is not a priority for General Duties police.

Since the Highway Patrol has been restructured, the number of TINS for non restraint use has declined very substantially from what it used to be. Given the significance of the Highway Patrol versus the relative insignificance of the General Duties this should be of concern.

The annual average of around 120 TINS issued by General Duties police for the Hunter for each of the 3 years for which data was supplied stands in stark contrast to what could be achieved. In Lismore, Sergeant Grant Tudwell organised a seat belt blitz in each of Casino, Kyogle, Ballina, Lennox Head and Lismore. During a three-day operation in August 2000 police apprehended 89 motorists for not wearing seat belts.

(3) RTA Enhanced Enforcement Program 2006

This research was undertaken in order to develop the EEP Strategic Plan 2006-2010. The rationale behind EEP was seen to be an increased “visible police presence on the road” on the assumption that such a “presence” influences traffic safety. In order to obtain EEP funding baseline hours of enforcement must first be achieved.

Constraints on Achieving Baseline

Highway patrol (HWP) is under-resourced having remained static in number in last 20 years versus a large increase in the size of population and number of registered motor vehicles/licensed drivers.

HWP report (in most instances) to a Local Area Commander (LAC) and a Duty Officer can decide HWP activities resulting in HWP frequently not being available for traffic enforcement with crime being seen as number one priority.

Both RTA and Police claim some LAC’s lack the desired commitment to traffic safety; a commitment required according to official police policy documents and the Command Performance Score Card. Unfortunately the lack of commitment sometimes extends also to some Regional Traffic Sponsors.

Policing is dynamic and constantly changing and HWP operates within this environment where LAC priorities impinge on the performance of their traffic duties, e.g. School crossings now a priority. LAC’s do not always have traffic safety as a priority.

For all the above reasons HWP almost invariably fail to achieve the required (3:1) baseline levels associated EEP operations. The Police are frustrated by their inability to achieve baseline and thus be eligible for EEP finding. HWP are not able to control what they do in baseline hours but applications for funding assume they can. The EEP guidelines are seen as “rules” to protect the dollar from being wasted. Consequently, the “rules” ensure that the budget will not be fully expended because Police cannot meet baseline on most occasions. Some LAC’s refuse to get involved in EEP because of a lack of resources (which precludes them from achieving baseline) or else other priorities than traffic safety.

The overall result is that a sizeable and increasing part of the money available for enhanced enforcement is never spent. The ratio of baseline to Enhanced hours per Police region is low at around 2 hours for all regions except greater metro (5 1/2 hours). EEP payments fall well short of EEP allocation because:

- Baseline hours are not achieved
- Police choose not to work the extended hours (fatigue)

HWP are squirreled away on non traffic duties. Accordingly, one of the recommendations was:

“Centralise the HWP under a separate command or a number of separate commands i.e. remove HWP from LAC control. Line control for the HWP should revert back to Traffic Services.”

The three cases presented suggest that current levels of enforcement in some (perhaps most or all) jurisdictions are insufficient to result in deterring many a would-be offender or detecting a sizeable proportion of actual offenders. Consequently, a sizeable proportion of those who could be deterred are not deterred and likely to believe that the likelihood of detection is sufficiently low enough to warrant taking a risk and offending. Of course heightened enforcement will not deter the worst offenders.

The potential of Communication to enhance Enforcement and Deterrence

As already argued the deterring influence of threatened or previously experienced sanctions is a function of the perceived likelihood of being detected were one to offend. The perceived likelihood of detection can be influenced by seeing or experiencing real world enforcement, word of mouth and by deliberate mass media campaigns focussing on enforcement (including road side bill boards, radio and television messages).

The effectiveness of the combined use of enforcement together with attempts to communicate the likelihood of detection via signage or feedback or mass media incorporating a detection/enforcement message is well established (Elliott's 1993a meta analysis of mass media campaigns; Gundy 1998; the Dutch studies reported by Noordzij & Mathijssen (1991).

The perceived risk of being caught is dependent on the nature (predictability in time and place) and level of enforcement activity, the use of associated publicity, and whether or not motorists actually observe and or experience the claimed increase in enforcement (Zaal 1994). For publicity regarding enforcement to have an effect it has to be backed by visible enforcement activity.

Dutch studies have shown that signposting the percentage of drivers complying with speed limits (plus margin) has a notable effect on speed choice (van Houten & Nau 1983, Rothengatter 1997). Shinar & McNight (1985) suggest that the effects are due to an implied threat of apprehension. But another explanation is possible. Feedback can communicate that by speeding one is violating traffic law and that one is deviating from the average traffic speed when speeding. Rothengatter (1997) suggests that the data indicates that drivers adapt their speed to the speed of others on the basis of the information provided by the feedback signs.

When publicity activities are combined with increased enforcement, there is a greater decrease in the incidence of speeding and the effects are prolonged after the program has ceased. *"Publicity without enforcement has far smaller long-term effects. Interestingly, enforcement activities are evaluated less negatively when they are preceded by publicity than when they are not"*. (Rothengatter, 1988, p605)

Combining enforcement with communication (announcing police controls or the use of surveillance activity) makes speed limit enforcement more effective and efficient, without producing more fines. It turns repressive enforcement into preventive enforcement.

What might be achieved by increasing the level effective enforcement?

Increased and more efficient traffic policing can impact on:

- Drivers' perceptions of the likelihood of detection and increase the level of instrumental compliance because of the fear associated with the sanctions.
- Drivers' cognitive biases such as the false consensus that most drivers are like them and its okay to speed "safely".
- Challenging drivers' beliefs as to the descriptive norm that most drivers do or will speeding.
- The level of normative compliance whereby speeding is seen as wrong and to be avoided so that the driver does not experience moral regret.
- The incidence of vehicle crashes and trauma associated to individuals and loved ones.
- The costs associated with crashes, police, fire brigade, ambulance, hospital, insurance companies, and loss of production.
- And not least, reducing the overall level of crime since criminals rarely walk to the scene of the crime.

SWOV, in their most recent publication on their research activities (Issue 38, July 2008), point out that costs associated with crashes in the Netherlands exceeds 5 billion euro and are more than 1% of the Dutch gross national product. This does not include the costs resulting from congestion due to crashes or intangible costs such as sorrow, pain and loss of production the latter is estimated at 7 billion euro annually. Thus the total cost in 2003 prices annually in the Netherlands is 12 billion euro.

Redelmeier, Tibshirani & Evans (2003) found that the risk of a fatal crash in the month after a conviction was about 35% lower than in a comparable month with no conviction for the same driver. They argued that than this 35% relative risk reduction in death is greater in magnitude than the roughly 20% relative risk reduction from all mandatory vehicle improvements in the past 50 years. They concluded: "*Policies of more frequent enforcement could yield more net savings and could be revenue neutral if designed efficiently. A small relative risk reduction could immediately prevent a large amount of death, disability, and health-care demands.*" (Redelmeier et al 1998, p.2181)

Can we rely on Deterrence Theory to Motivate Safe Road User Behaviour?

The answer is "No" if we do not devote more resources to effectively influencing drivers' subjective probability they will be detected if they offend. This in turn requires allocating more resources to efficient traffic enforcement together with more resources focussing on communicating the existence or likelihood of increased enforcement.

More signage about enforcement will achieve little without tangible visible enforcement. Relying on the status quo will not allow us to make gains in either behaviour change or crash reduction. When it comes to speed choice drivers are more likely to be influenced by their perceived risk of detection, the speeds of other drivers and the pleasures of driving rather than perceptions regarding the likelihood of crashing. If we are to make gains in safety we need to focus on driver behaviour and how to influence it.

It can be hypothesised that a critical mass of enforcement activity is necessary to achieve and maintain a deterrent effect (the level of water in Homel's bucket). If this critical mass level is not achieved is it not conceivable that the motorists' perceived risk of apprehension will

remain low and be reinforced by experiences of punishment avoidance. How much water do we need to have in the bucket? Research is needed to establish what might be the critical mass of enforcement and publicity to achieve a sufficient deterrent effect. It is likely this will vary by behaviour as Harrison and Pronk has suggested and over time and location.

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