

Enforcement and IT Issues for Traffic Safety in India

Dinesh Mohan

Issues

- **High demand less resources**
- **Conflict between security, crime and traffic**
- **Crime and traffic violation have a relationship (in US about 3 out of 5 crimes involve traffic violation)**
- **Criminals use motor vehicles**
- **Speeding and traffic violation checks can result in criminal identification**

Main Operational Problems

- One time registration for private vehicles
 - A large number of addresses wrong
 - About 40-60% of challans sent by mail cannot be serviced
- Police personnel in the field need much more moral and administrative support from seniors
- **Solution: Everyone must submit photograph of vehicle annually on internet, pay annual pollution fee, and receive sticker by registered post**

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Theory

- The most effective method of reducing highway traffic fatalities is by general prevention through High Visibility Enforcement (HVE)
- When the perceived risk of getting caught on the road by law enforcement goes up, the likelihood that people will engage in unsafe driving behaviours goes down

Traffic Stops Also Deter Roadway Crimes

- **Car Thefts and Car Jacking**
- **Fugitives in Transit (Child Molesters, Killers)**
- **Transporting of Stolen Property**
- **Abused, Kidnapped, Runaway Children**
- **Illegal Weapons**
- **Apprehend and Deter Terrorists**

Source: Muskegon County Sheriff's Office

Traffic Stops Also Deter Roadway Crimes

- **Transporting of Illegal Goods**
- **Outstanding Wants and Warrants**
- **Criminals Fleeing Crime Scenes**
- **Illegal Consumption of Alcohol/Drugs**
- **Criminals on Their Way to Crime Scene**
- **Uninsured Vehicles**

Source: Muskegon County Sheriff's Office

Police should focus mainly on

- **Speeding**
- **Enforcing:**
 - **Seat belt in front and back seat**
 - **Helmet law**
 - **Headlight use during daytime for two-wheeler**
- **Control of drinking and driving**
- **Red light jumping**

Possibilities

- **Certain road lengths and and locations have more accidents**
- **Some parts of the city have more crimes**
- **Select high accident rate locations for more enforcement**
- **If criminal activity and accident locations overlap, focus there first**
- **Enforcement has to be data based**

RANDOMIZE FOR MAXIMUM EFFECTIVENESS

RANDOMISATION

You have 85 sites/junctions for enforcement
but only 9 teams

RANDOM NUMBER GENERATOR

21 67 47 22 31 79 77 42 18

Generate random numbers between and

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GO

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Tackle Aggressive Drivers

- **Speeding**
- **Tailgating**
- **Zigzagging through traffic**
- **Blowing horn repeatedly**

Speed cameras



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Speed cameras



Effectiveness: +/- 3 km
Place at high crash locations
To stop speeding NOT punishing

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Red light cameras



Reduce crashes
Problems in India

Unpopular in US – some states banning them (privatisation?)

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Drinking and Driving

- Sobriety Checkpoints
- The main purpose is to “deter” drinking drivers, not arrest
- Checkpoints should be highly visible, publicized extensively, and conducted everyday to be effective

- Full Time DWI Enforcement Units
- Statewide DWI campaigns

Self-reported drink-driving behaviour

Country	Drink-driving in the past month	Checks per million population per day
ITALY	59%	521
FRANCE	45%	521
SPAIN	42%	307
GERMANY	33%	
NETHERLANDS	32%	
FINLAND	13%	1,329
SWEDEN	8%	886

Number checks for Delhi/day: >10,000

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European Commission, DG for Mobility and Transport

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POLICING

- **Increasing probability of apprehension: The deterrent effect of a law is determined in part by the severity and swiftness of the penalty for disobeying it, but a key factor is the perceived likelihood of being detected and sanctioned.**
- **Increased normal, stationary speed enforcement is in most cases cost-effective.**
- **Automatic speed enforcement seems to be even more efficient – Speed Cameras**

Carlsson, G. 1997 Cost-Effectiveness of information, campaigns and enforcement and the costs and benefits of speed changes. European Seminar On Cost-Effectiveness Of Road Safety Work And Measures, Luxembourg.
Bjornskau T, Elvik R. 1992. Can road traffic law enforcement permanently reduce the number of accidents? Accident Analysis and Prevention, 24(5):507-20.

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POLICING

NORWAY

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Effectiveness of fines as deterrents

THE NETHERLANDS

Combination of enforcement and penalties prevent the violation of traffic regulations and increase road safety. However, the most common type of penalty at the present time, a fine, has been found to have little effect

Road users adapt their behaviour without having already been punished. In particular, frequently conducted and very visible traffic checks, which are unpredictable in terms of time and place and are combined with public information campaigns, bring about the general prevention of traffic violations

Making penalties heavier, as an isolated measure, has been found to have little extra effect

SWOV Fact sheet...Penalties in traffic. SWOV (Institute for Road Safety Research), Leidschendam, The Netherlands, January 2009

Effectiveness of fines as deterrents

AUSTRALIA

- ❑ The certainty of detection, apprehension and conviction does matter and in fact may matter more than punishment severity in deterring potential offenders
- ❑ Increase in detection drink-driving offences have a greater impact on offending and, subsequently, road accident rates than those advocating harsher penalties
- ❑ It is suggested that substantial increases in fines and licence disqualifications would have limited potential in deterring recidivist offenders. ..
- ❑ The present analysis, failed to find any evidence for a significant relationship between fine amount and the likelihood that an offender will return to court for a new driving offence

Briscoe, S., (2004). Raising the bar: can increased statutory penalties deter drink-drivers? *Accident Analysis & Prevention* 36, 919-929.

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Effectiveness of fines as deterrents

USA: Effects of state statutory changes in DUI fine or jail penalties for first time offenders from 1976 to 2002

- ❑ 26 states implemented mandatory minimum fine policies and 18 states implemented mandatory minimum jail penalties.
- ❑ Estimated effects varied widely from state to state.
- ❑ Mandatory fine policies are associated with an average reduction in fatal crash involvement by drivers with BAC \geq 0.08 g/dl of 8% (averaging 13 per state per year)
- ❑ No significant effects were observed for the other outcome measures
- ❑ Conclusions: The overall pattern of results suggests a possible effect of mandatory fine policies in some states, but little effect of mandatory jail policies

Wagenaar, A. C., Maldonado-Molina, M. M., Erickson, D. J., Ma, L., Tobler, A. L., Komro, K. A., (2007). General deterrence effects of U.S. statutory DUI fine and jail penalties: Long-term follow-up in 32 states. *Accident Analysis & Prevention* 39, 982-994.

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India has the severest penalties delivered on the spot

Publication: Times Of India Delhi; Date:2008 Oct 10; Section:Times Nation; Page Number 14



Mob goes on rampage after bus crushes boy

Enraged by death of a boy in a road accident, villagers set 10 passenger buses on fire at Simga near Raipur on Thursday. Raipur DSP Amit Kumar told TOI, "The incident took place when a speeding private bus plying between Simga and Bemetara mowed down the boy near a Dussehra congregation." He said an angry mob rushed to the scene of the accident and set the bus afire. "The driver and conductor of the bus, however, managed to flee," he said. The villagers blocked the road and refused to cremate the boy. "They also refused to allow boy's postmortem," The agitated villagers then went on a rampage and set at least ten buses on fire after forcing the passengers to alight. TNN

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SUMMARY OF PENALTIES IN HIGH INCOME COUNTRIES WITH LOW FATALITY RATES

Summary for all countries studied	US\$	Prorated for Indian Driver Income (Rs)
Lowest penalty (eg parking)	~50	~200
Not wearing seat belt	~50	~200
Speeding	~100	~500
Drinking and driving	~200-1,000	~1,000-5,000
Highest penalty	~2,000	~10,000
US average one day taxi driver income		\$ 135
Most drivers' income		~ Rs 15,000 per month
Indian one day income		~ Rs 500

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SUMMARY

- ❑ **There is no evidence that severe penalties reduce violations in traffic, including jail sentences given in isolation.**
- ❑ **Announcement of severe punishments have a deterrent effect over a few months and the beneficial effect disappears over time.**

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SUMMARY

- ❑ **Severe penalties may have the effect of increasing criminal activities by the defaulter in order to collect money to pay the fine**
- ❑ **All violations that are not considered serious in terms of threat to life or wilful negligent acts endangering the community (serious injury or death), and those that do not require judgement should have fixed penalties**

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IN INDIA NOW

- Visual checking
- Focus on
 - Helmet wearing
 - Daytime headlight use by motorcyclists
 - Zig-zag driving /constant blowing horn etc
 - Seat belt use
 - Speed checking (You don't need "Interceptors)
 - Do random checks every day

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