

Letter to the editor of *Significance* – a journal of the Royal Statistical Society.
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Road safety: the debate goes on, and on

Apologies for my delayed reply to the *Controversy* piece by Richard Allsop, Oliver Carsten, Andrew Evans and Robert Gifford – “Seat belt laws: why we should keep them” (June 2008)¹ - challenging my piece – “Britain’s seatbelt law should be repealed” (June 2007)². It has only now been called to my attention. The leisurely pace of this debate, which goes back so far as my personal involvement is concerned to 1981, reduces to insignificance the problem of the captain trying to turn round the mythical super tanker.

The myth that seat belt laws save lives is so deeply entrenched that I no longer entertain hopes of their repeal. But I still feel compelled from time to time, now in retirement, to challenge the selective use of evidence of those who perpetuate it.

I take a tiny bit of consolation from the creeping acknowledgement of “risk compensation” – the idea that people, in this case drivers, respond to changes in their perception of risk. The debate has shifted from denial of the existence of the phenomenon to an argument about whether in particular circumstances the compensation is partial, complete or more than complete.³ The idea is now central to discussions of “shared space” or “naked streets” schemes that mix pedestrians, cyclists and motor vehicles in a way previously anathema to traditional highway engineers convinced that safety required regulation and segregation.⁴

Allsop et al observe that “others have reached different conclusions”. The principal witnesses on whom they rely in order to dismiss my evidence are Harvey and Durbin⁵. The reference they cite contains a contribution by me, as discussant. I said that “there are four reasons for supposing that [Harvey and Durbin] have over-estimated the beneficial effect of the law” and concluded: “If one trusts the accurate numbers (fatalities) rather than the large numbers (serious injuries), if one isolates the pedestrians and cyclists killed by cars and vans, if one allows the reduction in drunken driving a reasonable share of the credit for the decrease in fatalities in 1983, and if one considers the evidence from other countries, the balance of Harvey’s and Durbin’s evidence tilts strongly in favour of the conclusion that there has been no net life-saving benefit attributable to the belt law – only a shift in the burden of risk from the best protected to the most vulnerable road users.”⁶

For a debate to make progress protagonists must respond to each other. Allsop *et al* see no need to reply to my challenge to the evidence they cite, they merely repeat the evidence. Nor do they feel obliged to respond to my observation that Harvey and Durbin relied on only 22 months evidence, while the more extended time-series presented in my *Significance* article further strengthened my argument. Nor do they seek to explain the coincidence, illustrated by Figure 6 in my article, that almost all the lives of drivers supposedly saved by the seat belt law were those of drivers who had been drinking. Why, they fail to ask, should seat belts save only drunks? They are content to say nothing about the evidence

from many other countries that I have marshaled since 1982⁷. They simply observe that others have reached a different conclusion and conclude, therefore, that Adams must be wrong. Such is the power of the seat belt myth. It requires no further examination of the evidence.

But let's leave all this for aficionados with the appetite to rake over an old statistical argument. Let us turn to the utilitarian justification of Allsop *et al.* They say "the picture shows a clear reduction in death and injury to car occupants, appreciably offset by extra deaths among pedestrians and cyclists" but "they [seat belts] save many more deaths and injuries than they may cause."

Let us for the moment grant them their dubious contention of "many more deaths" saved than caused.⁸ Who are the saved and who are those sacrificed for their benefit? The saved are people in cars; the lives sacrificed are those of pedestrians and cyclists. The best protected (and usually the economically best off) are provided further protection at the expense of the most vulnerable.

This is a perversion of cost benefit analysis. It is a perversion because the seat belt law they are defending does not produce a *Pareto improvement*. This central tenet of cost benefit analysis states that a change from the status quo can only be considered an improvement if it makes at least one person better off *while leaving no one worse off*. Since there is no way of compensating a dead cyclist or pedestrian, their argument fails the Pareto test. Or, in non-economist speak, it is unfair.

The accident statistics tell only a part of the story. For many decades road safety measures have focused on making vehicles safer to crash in and road environments more forgiving of heedless driving. Where concern has been directed at vulnerable road users it has emphasized deference to traffic. Pedestrians are channeled by guardrails or forced to use underpasses and footbridges. Cyclists are offered inadequate cycle paths, encouraged to believe other roads are dangerous, and urged (and in some jurisdictions compelled) to wear helmets. Policy has been to withdraw vulnerable road users from the threat, rather than to withdraw the threat from the vulnerable. The group most seriously affected by this policy is children. The fears of parents and the admonitions of safety campaigners such as the Royal Society for the Prevention of Accidents have led to their almost complete withdrawal from the threat. Traditional children's independence has been lost, and with it a host of experiences vital to their physical and social development.⁹

Although the myth of the efficacy of seat belt legislation is now probably too immune to evidence to be overturned, we can end on a more cheerful and constructive note. Seat belt laws rest on a model of human behaviour that assumes that motorists are stupid, obedient automatons who are unresponsive to perceived changes in risk and who need protecting, by law, from their own stupidity. The idea of risk compensation underpins an alternative model of human behaviour: we are intelligent, vigilant, responsive to evidence of safety and danger and, given the right signals and incentives, considerate. Road users – motorists, pedestrians and cyclists – are now discovering, in pioneering shared space schemes, that safe and attractive urban environments can be devised to encourage the convivial coexistence of all road users.¹⁰

¹ *Significance*, Vol. 5, Issue 2, June 2008, pages 84-86.

² <http://john-adams.co.uk/wp-content/uploads/2008/08/seat-belts-for-significance-2.pdf>

³ In 1981 before the debate on the seat belt bill The Royal Society for the Prevention of Accidents sent a letter to all MPs saying “Adams’ thesis remains unproven”. And in 1982 in response to a paper on risk compensation and motorcycle helmet legislation submitted to the *American Journal of Public Health*, the editor said, “should we eventually publish your paper, I continue to see no reason why it should include the risk-compensation hypothesis” which he dismissed as “speculative”.

⁴ Numerous examples exist in Denmark, Germany, Sweden and The Netherlands. In the UK, Kensington High Street and Seven Dials in London are well-documented precedents, and there are many current schemes such as the refurbishment of the former ring road in Ashford, Kent. The work of the late Hans Monderman in the Netherlands, and Ben Hamilton-Baillie and others in the UK, demonstrate the practical benefits of risk compensation. See Ben Hamilton-Baillie, “Shared Space: Reconciling people, places and traffic”, *Built Environment*, May 2008, vol 34, 2, pp161-181 - <http://www.hamilton-baillie.co.uk/files/publications/25-1.pdf>.

⁵ Harvey, A.C. and Durbin, J. (1986) The effects of seat belt legislation on British road casualties. *Journal of the Royal Statistical Society Series A*, **149**, 187-227.

⁶ I have posted my comment in full as a PDF on my website - <http://john-adams.co.uk/wp-content/uploads/2008/10/significance.pdf>

⁷ Adams, J. 1982. The efficacy of seat belt legislation. *Society of Automotive Engineers, Transactions*, 2824-38 - <http://john-adams.co.uk/wp-content/uploads/2006/SAE%20seatbelts.pdf>.

⁸ “saved” – 432, “caused” 268.

⁹ See *One False Move... A Study of Children’s Independent Mobility* - <http://john-adams.co.uk/books/>

¹⁰ Where and when is shared space safe? <http://john-adams.co.uk/wp-content/uploads/2008/05/shared%20space.pdf> ,