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Britain's Seat Belt Law should be Repealed

It is a bad law. It is based on a dangerous, liberty-threatening, principle. It hasn't worked. It's unfair. It should be repealed.

*The seat belt law, with minor national variations, probably affects more people than any other single piece of safety legislation. The first seat belt law came into effect in the state of Victoria in Australia in 1970; by 1991 over 80 jurisdictions world wide had laws compelling drivers and some passengers to wear seat belts¹. Around the world hundreds of millions of motorists are now obliged by law to belt up. **John Adams** believes that seat belt laws should be repealed - and he has statistics*

It is now a "truth" almost universally acknowledged that laws compelling the wearing of seat belts have saved many thousands of lives. It is a "fact" endlessly repeated, not only on television and in the popular press, but in the scientific literature. Seat belts feature routinely in discussions of safety as an example of a measure that yields enormous benefits for minimal cost. The "success" of seat belt legislation in saving large numbers of lives is frequently cited by advocates of other public health measures as an example of the way legislation and regulation can reduce risk.

In a British parliamentary debate about seat belts in 1979 William Rodgers, then Secretary of State for Transport, claimed "On the best available evidence of accidents in this country - evidence which has not been seriously contested - compulsion could save up to 1000 lives and 10,000 injuries a year" (*Hansard* 22 March).

Although the magnitude of the savings attributed to seat belts around that time varied, the claims made in the scientific literature prior to the passage of the British seat belt law in 1981 were consistently large. A report by the Transport and Road Research Laboratory shortly before the parliamentary debate in 1979 concluded "seat belts reduce deaths of car occupants by at least 40 per cent"². Hurst³ more than doubled this estimate: "belt use reduces the chances of fatal injury by about 83 per cent for drivers and about 80 per cent for front seat passengers." The Royal Society for the Prevention of Accidents produced a campaign pamphlet⁴ which claimed that "... for belted occupants the deaths were reduced by 77 per cent in full frontal crashes and 91 per cent in roll overs." The pamphlet concluded "no other single practical piece of legislation could achieve such dramatic savings of lives and serious injuries." In the 1981 parliamentary debates which preceded the passage of the law the claim that 1000 lives and 10,000 injuries a year would be saved was repeated

frequently, although some influential supporters of the law advanced even larger claims; David Ennals (*Hansard* 13 January, 1981), a former Secretary of State for Health informed Parliament that not wearing a belt increased six-fold a motorist's chances of being killed in an accident.

By the time of the vote in Parliament in 1981 the seat belt law had acquired an impressive number of influential sponsors: the British Medical Association, the Royal Society for the Prevention of Accidents, the Royal College of Surgeons, the Royal College of Nursing, the Royal Scottish Automobile Club, the Society of Automotive Manufacturers and Traders and the Automobile Association. In the House of Lord's debate Lord Avebury (*Hansard*, 11 June 1981) offered this list of sponsors as compelling evidence for legislation. "Why, after all," he asked, "would these institutions seek to mislead the public?"

The answer, it appears, is that they misled themselves. At this time none of these institutions appeared to be aware of *risk compensation*⁵ – the possibility that there might be a behavioral response to the compulsory wearing of seat belts. The possibility had not been investigated in any of the studies they cited. Their support for a law rested on two sorts of evidence: the effect of seat belts in crashes, and the effect of legislation in Australia. None of the prestigious institutions cited by Lord Avebury, and none of the countries that followed the lead of Victoria in passing a seat belt law, produced any compelling new evidence. The law's supporters all cited the original Australian evidence, or other people citing the Australian evidence, or other people citing other people etc.

There was other evidence of the effect of legislation that could have been consulted at that time. This other evidence did not support the claims made for the law and, as we shall see in a moment, Australia was a particularly unfortunate example on which to rest their case. By 1981 there was evidence available from thirteen countries that had passed seat belt laws. Figure 1 compares their road accident records with those of a "no-law" group of four countries that had not at that time passed a law. Together these 17 countries constituted an impressive sample; they contained over 80 per cent of the world's car population. The bars on the "law" graph indicate the dates at which seat belt laws were implemented, beginning with Australia and ending with Denmark, West Germany and Switzerland in January 1976. Around this time all 17 countries with the exception of Australia and Spain, experienced marked decreases in their road accident death tolls. *Collectively, the group of countries that had not passed seat belt laws experienced a greater decrease than the group that had passed laws.*

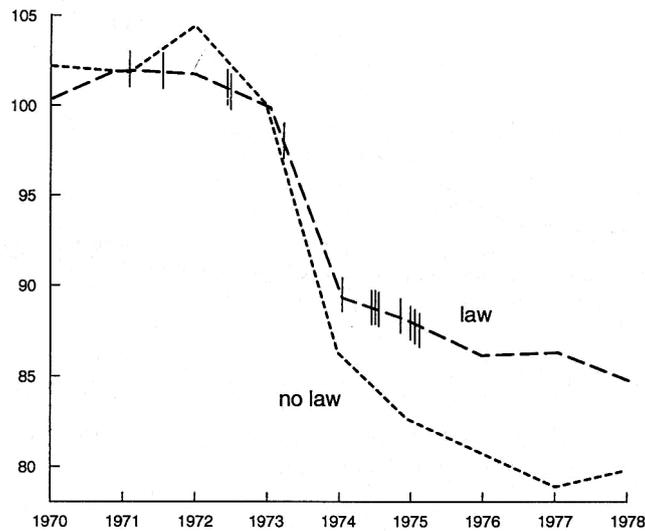


Figure 1 The effect of seat belt legislation. Indices of road accident deaths for countries with seat belt laws and without. Indices are set to 100 in 1973 – the year of the “energy crisis”. Bars indicate the dates at which laws came into effect in the “law” group. Source: (Adams 1982, 2824-38)⁶.

The decreases shown in Figure 1 occurred in the aftermath of the 1973/74 energy crisis when the whole world was anxious about the adequacy of energy supplies, and was being subjected to advice about the energy saving benefits of light-footed driving. The country that experienced the greatest decrease in the mid-1970s was Denmark, *before* its law was passed. As can be seen in Figure 2, after its law road deaths increased slightly.

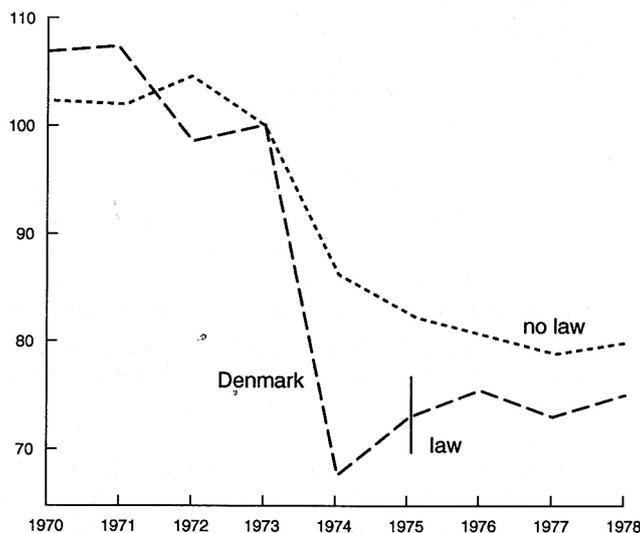


Figure 2 The effect of the seat belt law in Denmark. Source: (Adams 1982, 2824-38).

Australia, the case that provided the main justification for most of the world's seat belt laws, stands out as the country whose road death toll varied the least between 1970 and 1978. The analyses that led to the seat belt claims all assumed that the rising trend of the 1960s would have continued, but for the seat belt law. Figure 3 is typical of these analyses. But, as Figure 4 shows, Australia when compared with most other countries was exceptional in *not* enjoying a substantial decrease in road accident deaths in the 1970s. Figure 3 is interesting for another reason; it also contains the first suggestion that less careful driving by belted motorists might displace risks to other road users, mainly cyclists and pedestrians. Although the evidence summarised in Figures 1 to 4 was available before the British Parliament passed its seat belt law, the Department of Transport continued to insist that the only country whose road accident statistics constituted "direct evidence on death" was Australia, and that this evidence provided compelling support for a British seat belt law.

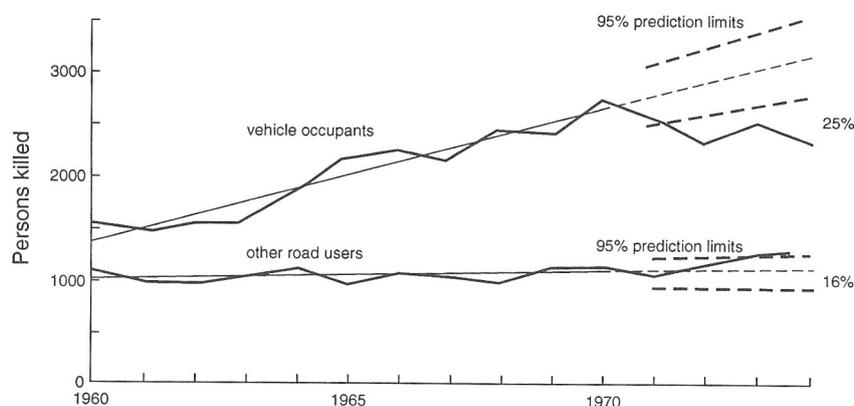


Figure 3 Road accident deaths in Australia; the beginning of the myth of seat belt effectiveness. Source: (Adams 1982, 2824-38).

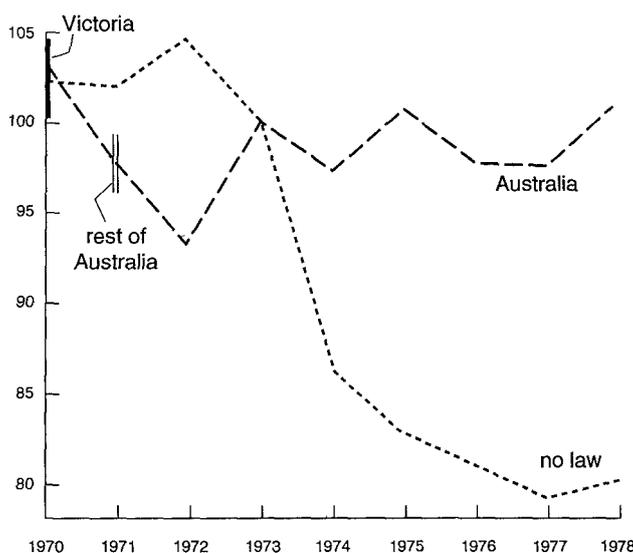


Figure 4 Australia's record compared to that of countries without seat belt laws. Source: (Adams 1982, 2824-38).

Ten years later, with laws having been passed in more than 60 other jurisdictions one would expect the evidence in support of the claims for seat belt legislation to be voluminous, but oddly it had shrunk dramatically. The claims now all rested on the experience of only one country, the United Kingdom. After surveying the global evidence Evans⁷ reached the following conclusion:

“The highest precision evaluation is for the UK’s law, where belt use rose rapidly from 40% to 90% in a large population of affected occupants. The law reduced fatalities to drivers and front-seat passengers by 20%. For smaller use rate increases, and for smaller populations (that is, in nearly all other cases), it is not possible to directly measure fatality changes. They can be reliably estimated using an equation based on the known when-used effectiveness of the belts together with a quantification of *selective recruitment* effects⁸ - the tendency of those changing from non-use to use to be safer than average drivers” (p. 278).

In other words, out of the more than 80 jurisdictions with seat belt laws only in the UK, according to Evans, was there a fatality-reduction effect that could be measured directly. In all the other jurisdictions the life saving benefits were too small to register in the casualty statistics. The claims made for seat belt laws in all these other jurisdictions rested on a deduction which *assumed* no risk compensation effect. Evans’ evidence concerning the life-saving benefits of seat belts *if one is in a crash* is not disputed. The evidence that the use of a seat belt improves a car occupant’s chances of surviving a crash is convincing. That a person travelling at speed inside a hard metal shell will stand a better chance of surviving a crash if restrained from rattling about inside the shell is both intuitively obvious and supported by an impressive body of empirical evidence. Evans has calculated that wearing a belt reduces one’s chances of being killed, *if in a crash*, by 41%. He assumed that this benefit had been enjoyed by all those in the 80 plus jurisdictions that had belted up in response to a law, and the laws therefore could be given credit for saving large numbers of lives. But it does seem curious that with such a large effect, the only jurisdiction that he felt he could cite with confidence to demonstrate directly measured fatality reductions was the UK.

Doubt was first cast on the international evidence for seat belt laws in a discussion paper by Adams⁹; Figures 1 to 4 above were first published in this paper. Britain’s Department of Transport commissioned an internal critique of the paper. This critique, entitled *Seat Belt Savings: implications of European statistics*¹⁰, concluded that there was no foundation for the Department’s oft-repeated claim that a seat belt law would save 1000 lives and 10,000 injuries a year. It found what Adams had discovered, and what Evans found ten years later in his review of the evidence world wide - that there were no directly measurable reductions in fatalities that could be attributed to seat belt laws. It said

“Available data for eight western European countries which introduced

a seat belt law between 1973 and 1976 suggests that it *has not led to a detectable change in road deaths* [my emphasis] ... The results are not compatible with the Department's "1000 plus 10,000" estimates ..."

This report also noted that in all eight countries, as in Australia, the number of pedestrians injured following the passage of a seat belt law increased. Individually none of the increases was statistically significant, but collectively this result was highly significant.

The UK seat belt law

Figure 5a shows what happened to road accident deaths in Britain in 1983, the first year of the law. Nothing remotely approaching the originally promised saving of 1000 lives a year can be seen. There appears to have been a small, temporary drop below a well established downward trend. Most of the analyses relied upon by the government in its subsequent defence of the law assumed that the slight upturn in the graph in 1982 represented a new *upward trend* that would have continued into 1983 and beyond, but for the beneficial effect of the seat belt law which came into effect in January 1983. The claims for the effect of the seat belt law are thus inflated by this assumed "ski-jump effect"; the actual fatalities were compared to the number expected on the assumption that 1982 represented the beginning of a new trend. However, it can be seen in Figures 5b and 5c that all of the increase in fatalities in 1982 was between the hours of 10 at night and 4 in the morning - the time known in the road safety literature as the "drink-drive hours". During the other hours the established downward trend continued. Figure 6 pinpoints the 1982 increase even more precisely; almost all of it occurred in non-built-up areas and was associated with drivers who had been drinking.

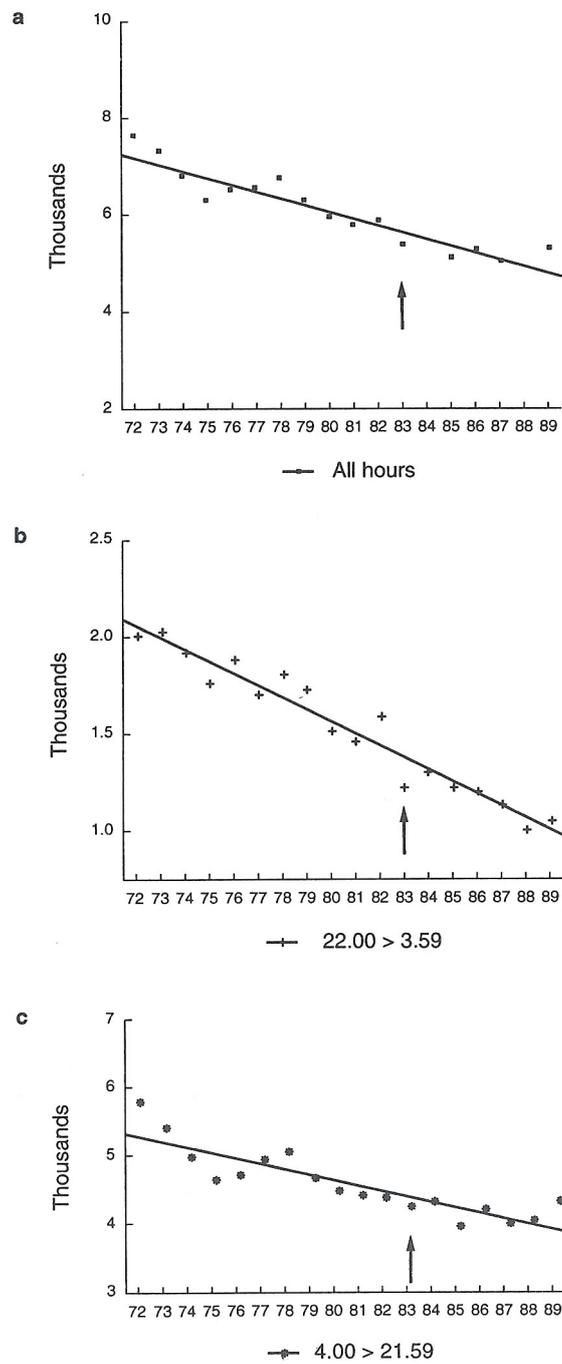


Figure 5 Great Britain road deaths by time of day. Source: *Road Accident Great Britain*, HMSO, published annually. The arrows indicate the point at which the promised 1000-lives-a-year saving should have become apparent.

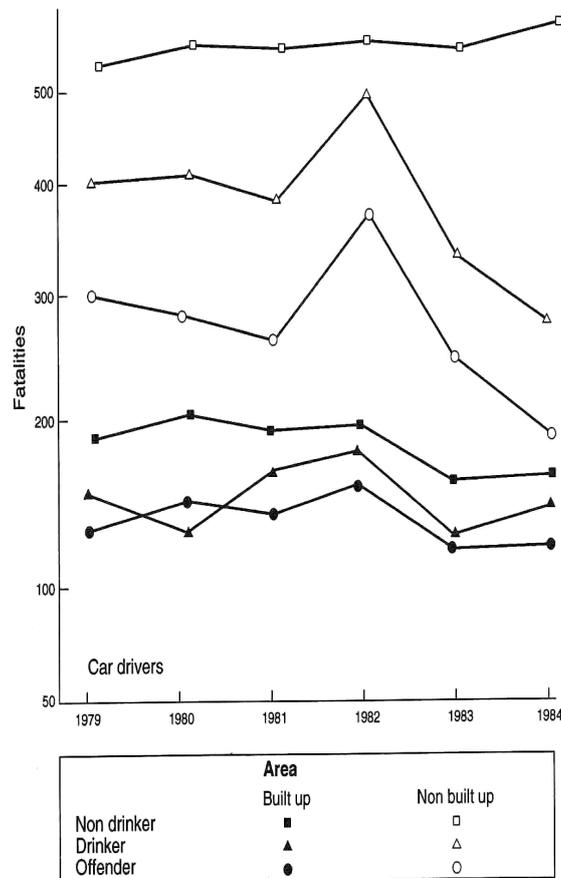


Figure 6 Great Britain driver deaths by place and alcohol level in dead driver. Source: (Broughton and Stark DC 1986).

The decrease in fatalities in 1983 was clearly related to the campaign against drunken driving. In that year

- “evidential” breath testing was introduced,
- unprecedented numbers of breath tests were administered,
- the number of motorists successfully prosecuted for drunken driving increased by 31%.
- the decrease in road deaths between 10 at night and 4 in the morning was 23%, while in all other hours it was only 3% - in line with the prevailing trend,
- the percentage of dead drivers who were over the legal alcohol limit dropped from 36% to 31%.

The 1982 “alcohol blip” has never been satisfactorily explained. The sharp increase in that year in drink-related road accident deaths in non-built-up areas remains a mystery. According to a Transport and Road Research Laboratory Report¹¹ “the series for drinking car drivers in non-built-up areas shows an increase in 1982 which cannot be related to available explanatory variables.”

But no studies have been done so far to explain why, after the seat belt law came into effect in Britain, seat belts were so extraordinarily selective in

saving the lives only of those who are over the alcohol limit and driving between 10 at night and 4 in the morning. It is a question that the Department of Transport declined to pursue.

In Britain, as in Australia, and as in the eight European countries examined by Isles, in the year that the wearing of seat belts became compulsory the numbers of pedestrians and cyclists killed increased, by 8% and 15% respectively. The numbers of pedestrians and cyclists killed by heavy goods vehicles and public service vehicles (categories not covered by the law) decreased following the law.

In summary there were two major road safety measures introduced by the British Government in 1983: the seat belt law and the campaign against drinking and driving. Figure 5 suggests that in 1983 there was a very small, temporary, drop in road accident fatalities below the established trend. The evidence with respect to seat belts suggests that the law had no effect on total fatalities but was associated with a redistribution of danger from car occupants to pedestrians and cyclists. The evidence with respect to alcohol suggests that the decrease in fatalities in 1983 during the drink-drive hours is accounted for partly by the still-unexplained rise above the trend in 1982, and partly by the drink-drive campaign in 1983. The evidence from Britain, which has been singled out as *the only jurisdiction in the world* in which it is possible to measure fatality changes directly attributable a seat belt law, suggests that the law produced no net saving of lives, but redistributed the burden of risk from those who were already the best protected inside vehicles to those who were the most vulnerable outside vehicles.

And finally. Not only has the law failed to achieve the life-saving benefits claimed for it, and produced an unfair re-distribution of risk on the road, it has set a dangerous precedent. In criminalizing self-risk it has established a dangerous, liberty-threatening, principle that licenses the state to proscribe any thing or activity of which it might disapprove – from rock-climbing, to drinking and smoking, to eating too many cream buns.

In other words, it is a bad law. It is based on a dangerous liberty-threatening principle. It hasn't worked. It is unfair. It should be repealed.

References

¹ Evans, L. 1991. *Traffic Safety and the Driver*. New York: Van Nostrand Reinhold.

² Grime, G. 1979. *The protection afforded by seat belts*. Report SR449. Transport and Road Research Laboratory, Crowthorne, Berkshire.

³ Hurst, P.M. 1979. Compulsory seat belt use: further inferences. *Accident Analysis and Prevention* 11, 27-33.

⁴ Royal Society for the Prevention of Accidents, 1981. *Seat Belt Sense*, Birmingham, RoSPA.

⁵ A term coined by G. Wilde in 1976 in “The risk compensation theory of accident causation and its practical consequences for accident prevention. Paper presented to the annual meeting of the Osterreichische Gesellschaft fur Unfallchirurgies, Salzburg.

⁶ Adams, J. 1982. The efficacy of seat belt legislation. *Society of Automotive Engineers, Transactions*, 2824-38.

⁷ Evans, L. 1991. *Traffic Safety and the Driver*. New York: Van Nostrand Reinhold.

⁸ The evidence referred to by Evans concerning the ‘when-used effectiveness of belts’ is based on crash testing using dummies, and on paired-comparison studies which examine the injuries suffered in crashes when one occupant was belted and another unbelted. ‘Selective recruitment effects’ must be allowed for because the timid and cautious are most likely to belt up voluntarily, while the wild and reckless are most likely to defy a law.

⁹ Adams, J. 1981. The efficacy of seat belt legislation: a comparative study of road accident fatality statistics from 18 countries. Occasional Paper, Department of Geography, University College London. Subsequently published as a peer-reviewed paper as Adams, J. 1982. The efficacy of seat belt legislation. *Society of Automotive Engineers, Transactions*, 2824-38

¹⁰ Isles, J.E. 1981. Seat belt savings: implications of European Statistics. London, UK Department of Transport. This report was suppressed, i.e. not published, and not available to Parliament when it debated the seat belt law. A leaked copy was reported four years later in *New Scientist* (7 February 1985). The contents of the report and its conclusions have never been denied.

¹¹ Broughton, J.& D.C. Stark 1986. *The effect of the 1983 changes to the law relating to drink/driving*. Transport and Road Research Laboratory Research Report 89, Crowthorne, Berks.