

5. Valuation of Road Accidents 1994

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Introduction

An article in *Road Accidents Great Britain 1992* (O'Reilly and McMahon, 1993) described the methodology for casualty valuation, and, in particular, the revised non-fatal casualty values. This article provides updated values for 1994 casualties and accidents, and describes recent revisions to medical costs and accident costs. Fuller information on accident costs will be published as usual in Highways Economic Note No 1: Valuation of Road Accidents.

1994 Values

Table 5a: Average costs per casualty: 1994

£				
<u>Severity</u>	<u>Lost Output</u>	<u>Medical & Ambulance</u>	<u>Human Costs</u>	<u>Total</u>
Fatal	272,690	510	510,880	784,090
Serious	11,500	6,970	70,912	89,380
Slight	1,220	520	5,190	6,920
All severities of injury	5,880	1,470	20,750	28,100

Table 5a shows for each component of cost the average costs per casualty by severity, at June 1994 prices.

Table 5b: Average costs per accident: 1994

£							
<u>Severity</u>	<u>Lost Output</u>	<u>Medical and Ambulance</u>	<u>Human Costs</u>	<u>Police Costs</u>	<u>Insurance Admin</u>	<u>Property Damage</u>	<u>Total</u>
Fatal	305,310	4,100	596,660	1,020	160	5,880	913,140
Serious	13,660	8,190	83,280	140	100	2,710	108,080
Slight	1,570	670	6,710	30	60	1,590	10,630
All injury	7,910	1,980	27,940	60	70	1,840	39,810
Damage only	-	-	-	2	30	1,020	1,050

Table 5b shows cost components by severity of accident. Average accident costs are higher than the corresponding casualty costs because, on average, there is more than one casualty per accident, and because accident costs include values for police and insurance administration and property damage which are assigned to the accident as a whole rather than to specific casualties.

Table 5c gives the average cost per accident by type of road. For each level of severity, costs are highest on motorways and lowest on built-up roads, due to variations in the average number of casualties per accident, and in the property damage component of accident costs. Accidents on built-up roads tend to occur at lower speeds and incur lower damage costs, with the highest costs being associated with motorways. However, the overall average cost for all personal injury accidents is highest on non built-up roads where fatal and serious casualties account for a higher proportion of total casualties than is the case for motorways.

Table 5c: Average costs per accident by type of road: 1994

	£			
<u>Accident type</u>	<u>Built-up roads</u>	<u>Non built-up roads</u>	<u>Motorways</u>	<u>All roads</u>
Fatal	850,260	962,200	1,006,730	913,140
Serious	101,590	120,770	126,820	108,080
Slight	10,010	12,250	14,540	10,630
All injury	31,460	65,170	48,350	39,800
Damage-only	990	1,460	1,400	1,050

These values have been revised since those published last year, to take account of the annual increase in GDP and inflation, and recent information on the costs of medical treatment. There has been no change in the methodology for valuing casualties, which is based on willingness to pay estimates as described in RAGB 1992. A detailed summary of the full methodology for accident valuation will be available in a forthcoming TRL report (Hopkin & Simpson 1995). The rest of this article will describe briefly the main changes which have been made since the RAGB 1992 article.

Medical and Ambulance Costs

a) Fatal casualties

The estimated costs associated with fatal casualties take account of the use of the ambulance service, Accident and Emergency (A & E) Department costs, hospital in-patient costs, and blood transfusion services. The costs are based on Department of Health data for 1984/85 on usage of services, updated for the health service cost index and growth in GDP. This method has not changed in recent years.

b) Non-fatal casualties

As part of the research into the valuation of non-fatal casualties, an in-depth study of

casualties in Manchester was carried out, in order to obtain detailed information on injuries, treatment, and residual disability. This information has been used to revise medical cost estimates for non-fatal casualties.

i. Serious casualties

Serious injuries, as defined for STATS19, cover a wide range, from a fractured finger up to injuries leading to permanent disablement, or even death more than 30 days after the accident. To improve the accuracy of estimates of medical costs it was necessary to subdivide this group of casualties using injury descriptions which discriminated between different serious injuries according to the extent and duration of pain, length of time in hospital, recovery period, and level of any residual disability. These injury descriptions were originally devised for the willingness to pay survey of serious casualties (see O'Reilly and McMahon, 1993).

Information on the use of medical services was collected in the Manchester area through surveys of patients attending A & E and outpatient departments following road accidents. The costs included use of ambulance services, hospital treatment, both as in-patients and as outpatients, district nurse services, provision of medical appliances and social security benefits. Costs were assessed for the first 18 months following the accident. Information on unit costs of treatment were obtained from the Department of Health where possible; for some costs, data from Greater Manchester were used. The costs for each injury group were weighted together according to their relative incidence to obtain a weighted average for a serious casualty.

ii. Slight casualties

The majority of slight injuries are cuts and bruises requiring little medical treatment, but the Manchester surveys of casualties showed that about 20 per cent of the casualties defined as slight in STATS19 have whiplash injuries, which take up to three years for complete recovery. The use of medical services was investigated through the surveys in Manchester, taking account of the higher costs associated with whiplash injuries. Again cost data from both national Department of Health sources and from Greater Manchester were combined.

Full details of the Manchester surveys of serious and slight medical costs are available in Hopkin and Simpson 1995.

Costs of damage to property

The cost of damage to vehicles involved in road accidents and to other property at the scene of the accident are a major component of accident costs. In order to obtain up-to-date estimates of the costs of property damage a survey of claims data from a major insurance company was carried out. Costs were estimated for motorways, urban and rural roads separately and for the different severities of accident (fatal, serious, slight and damage-only). Included in the cost estimates were damage to vehicles, damage to public and private property such as personal effects, fences and street furniture, and costs relating to loss of use of the damaged vehicle and hire of a replacement vehicle. The damage costs for non-fatal accidents were adjusted to allow for accidents for which no claim was submitted.

Insurance administration costs

The average costs of handling claims for road accidents were estimated from data provided by an individual insurance company, and by several companies providing insurance via the Automobile Association. The costs included staff time plus overheads and expenses. Again, the average costs for non-fatal accidents were adjusted to take account of accidents which did not result in a claim.

Police costs

Estimates of the cost of police officers' and administrative staff time were obtained from Avon and Somerset Constabulary. Costs were derived by severity of accident and type of road. Information was collected through interviews with police officers, and the average length of time it took to police fatal and serious accidents was weighted by the national distribution of accidents for each road type to produce average figures. These were supplemented by information on the tasks carried out by Accident Support Units, including completing accident reports and STATS19 forms and dealing with enquiries. Less detailed estimates for slight casualties were derived.

Damage-only accidents

Most road accidents do not result in injury, but these damage-only accidents are seldom reported to the police. National road accident statistics only cover reported injury accidents. There are, however, significant costs associated with accidents even if there is no injury, so in order to obtain a comprehensive estimate of national accident costs, estimates of both the number and cost of damage-only accidents are required.

The number of damage-only accidents was estimated from the insurance claims data by deriving the ratio of damage-only to personal injury accidents. Because an earlier survey (Taylor 1990) had shown that for every damage-only accident for which a claim was made there were 0.69 unclaimed accidents, the numbers were adjusted to take this into account.

Costs of damage to property, insurance administration and police costs were estimated for damage only accidents as described above.

Conclusion

The work on medical costs reported on here completes the major review of valuation of road accidents which has been carried out over the last few years. The most significant change has been in the methodology for casualty valuation which is now based on Willingness to Pay methods. This approach has been endorsed by an international study carried out under the auspices of the European Commission Directorate-General "Transport", project COST 313, "Socio-economic Cost of Road Accidents", published by the Commission in 1994 (Alfaro et al 1994).

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