Estimating economic loss - recent developments

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This paper has been written for presentation at the Victorian State Conference of the Australian Plaintiff Lawyers Association, 23 to 25 March 2001. Richard Cumpston is a director of Cumpston Sarjeant Pty Ltd, consulting actuaries, Melbourne.

Summary

This note describes some recent developments in the estimation of economic loss in personal injury cases:

- deductions for vicissitudes, taking into account probabilities of unemployment, sickness, disability and strikes
- approximate allowances for superannuation losses
- dependency percentages for two-parent families
- life expectancies in 2001 allowing for future mortality improvements
- fund management costs for intellectually impaired persons
- conflicting data on the life expectancies of persons with cerebral palsy
- exclusion of late actuarial reports
- optimal cash flow assumptions.

APLA members have been involved in all these developments. Australia's plaintiff lawyers work hard for their clients, often trying new ways to achieve fairer results.

I am very grateful to Peter Barker, Peter Barr, Angela Bentley, Eve Blair, Richard Faulks, Alexia Jackson, Len Levy, Harold Luntz, Dylan McKimmie, Ron Meldrum, Andrew Morrison, Stephen Lieschke, Hugh Sarjeant and Sukhwant Singh for their help.

We are updating our note "Economic loss estimates in personal injury cases", and will be happy to supply copies to plaintiff lawyers.

Deductions for vicissitudes

The February 2001 issue of "Plaintiff" had an article "Deductions for vicissitudes when estimating the value of future earnings", by Hugh Sarjeant and myself. This used Australian data on unemployment, disability insurance claims, total and permanent disablement claims, industrial disputes and occupational earnings to suggest the following deductions for use in Victoria:

Table 1 : Deductions allowing for unemployment, sickness, disability & strikes

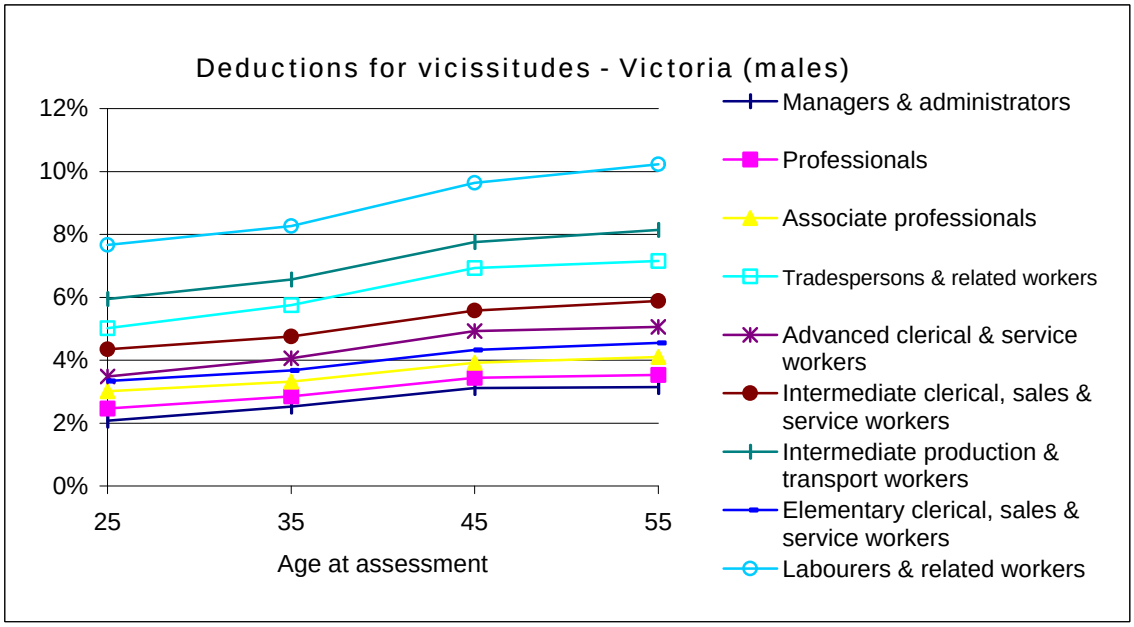
Occupation	Age 25	Age 35	Age 45	Age 55
Males				
Managers & administrators	2%	3%	3%	3%
Professionals	2%	3%	3%	4%
Associate professionals	3%	3%	4%	4%
Tradespersons & related workers	5%	6%	7%	7%
Advanced clerical & service workers	3%	4%	5%	5%
Intermediate clerical, sales & service workers	4%	5%	6%	6%
Intermediate production & transport workers	6%	7%	8%	8%
Elementary clerical, sales & service workers	3%	4%	4%	5%
Labourers & related workers	8%	8%	10%	10%
Females				
Managers & administrators	2%	2%	3%	4%
Professionals	2%	2%	3%	4%
Associate professionals	2%	3%	3%	4%
Tradespersons & related workers	3%	4%	5%	7%
Advanced clerical & service workers	2%	3%	4%	5%
Intermediate clerical, sales & service workers	3%	3%	4%	5%
Intermediate production & transport workers	4%	5%	6%	7%
Elementary clerical, sales & service workers	2%	2%	2%	3%
Labourers & related workers	4%	5%	6%	7%

Suppose that an award for future earnings losses is being made to a seriously injured 27 year old male plumber in Victoria. Assuming a statutory discount rate of 3% pa, and mortality rates as in the Australian Life Tables 1996-98, the value of $1 a week to age 65 is $1153. Evidence on comparable employees suggests potential earnings of $50,000 pa, or $786 a week after tax. The award for future earning capacity losses, before deductions, might thus be estimated as

1153 by 786 ie $906,258

Table 2 suggests that a deduction of about 5% for unemployment, sickness, disability and strikes is appropriate for a young tradesman. The award after this deduction would be

$906,258 less 5% ie about $861,000



Deductions for females are generally lower, reflecting their lower occupational risks. We provided a separate table, with higher deductions, for use in those states where allowances for mortality risks are made as part of the deduction for vicissitudes. The deductions were calculated assuming a discount rate of 5%. Slightly higher deductions are obtained with a discount rate of 3%, and slightly lower with a rate of 6%. Earnings to age 65 are assumed, and slightly lower deductions would apply to ages 55 or 60.

Although we understand that courts have generally used higher deductions for younger plaintiffs, our calculated deductions increase with age.

We said that our tables of deductions were

> "...intended to help personal injury lawyers make reasonable deductions for vicissitudes at every stage of a claim - when advising clients, making offers, in mediations and in court. The suggested deductions may result in generally higher awards for loss of future earning capacity."

We would be very interested to learn whether our tables have been referred to in any judgements, or been helpful in settlement negotiations.

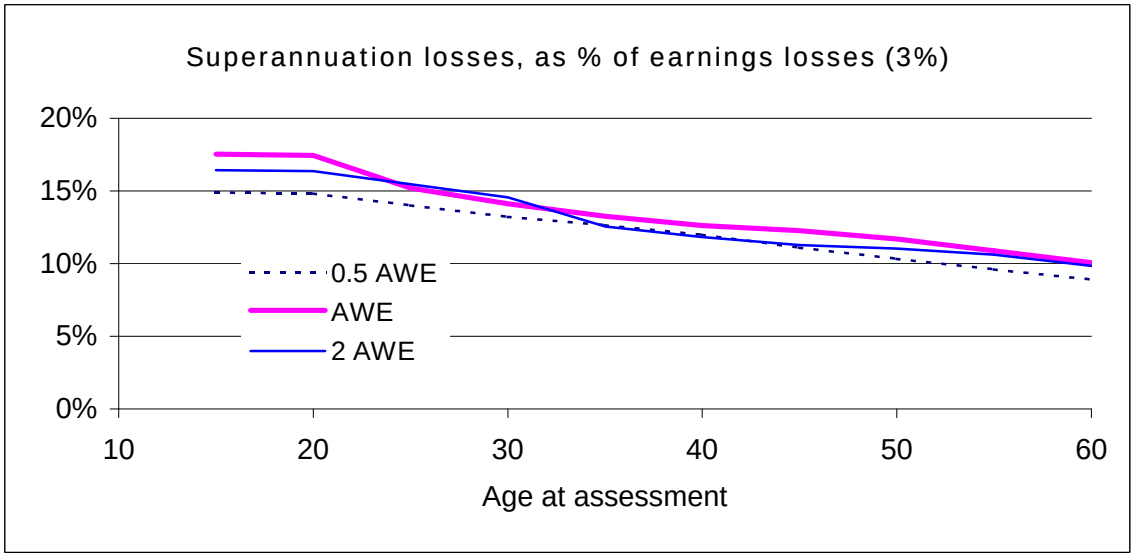
Approximate allowances for superannuation losses

Particularly in jury trials, it can be very helpful to have some idea of value of superannuation losses, as a percentage of the value of earnings losses. For example, a jury may decide that an award of $650,000 is appropriate for the earnings losses of a person aged 35 receiving average weekly earnings. The following table suggests that, with a statutory discount rate of 3% pa, superannuation losses may be worth about 13% of earnings losses, ie about $85,000.

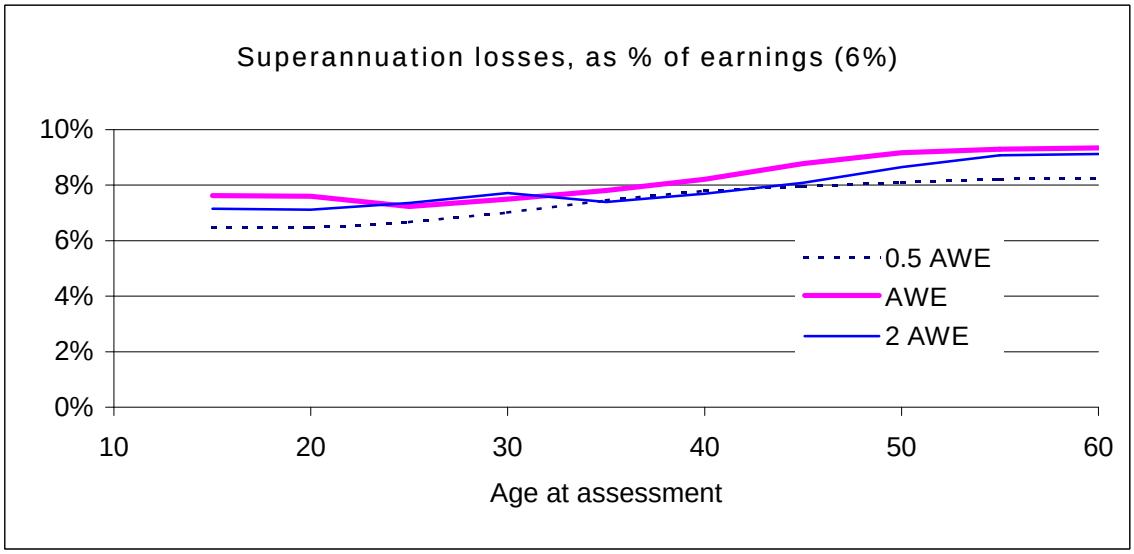
Table 2 : Superannuation losses as a % of earnings losses

Age	3% pa discount			6% pa discount		
	0.5 AWE	AWE	2 AWE	0.5 AWE	AWE	2 AWE
15	15%	18%	16%	6%	8%	7%
20	15%	17%	16%	6%	8%	7%
25	14%	15%	15%	7%	7%	7%
30	13%	14%	15%	7%	7%	8%
35	13%	13%	13%	7%	8%	7%
40	12%	13%	12%	8%	8%	8%
45	11%	12%	11%	8%	9%	8%
50	10%	12%	11%	8%	9%	9%
55	10%	11%	11%	8%	9%	9%
60	9%	10%	10%	8%	9%	9%

Estimates are shown for persons with gross earnings of 50%, 100% and 200% of Australian average weekly earnings ($899 for full-time adult employees in August 2000).



By contrast, with a statutory discount rate of 6%, superannuation losses may only be about 6% to 9% of earnings losses. For the same case as above, the value of earnings losses might be assessed as $470,000, and superannuation losses as 8% of this figure, ie $38,000.



Assumptions made in Table 2 are

- superannuation contributions as under the Superannuation Guarantee (Administration) Act 1992 (9% pa from 1/7/02)
- earnings estimates allow for mortality rates as for males in the Australian Life Tables 1997-99
- superannuation estimates make no allowance for mortality
- $2 per week for expenses and insurance
- investment earnings at 5.5% pa in excess of inflation
- earnings commencing at age 21, and ceasing at 65
- all estimates as at 1/7/02
- no allowance for past earnings or superannuation
- in cases where the lump sum available at retirement exceeds the retirement benefit limit, half is assumed to be taken as a lump sum, and the other as a 15-year indexed pension.

Given the 9% statutory contribution rate applying from 1/7/02, it might be expected that the value of superannuation benefits would be about 9% of the value of earnings. But earnings are valued after income taxes, while superannuation contributions are taxed when paid, and superannuation benefits are taxed on receipt. Superannuation funds generally hold a broad range of investments, pay little or no tax on investment income, and can readily earn 5% or 6% pa more than the rate of inflation.

For young persons, accumulating superannuation contributions at 5.5% pa and discounting at 3% gives superannuation values higher than the 9% statutory contribution rate, even after allowing for taxes on contributions and benefits. By contrast, accumulating at 5.5% and discounting at 6% gives values lower than the 9% statutory contribution rate.

Dependency percentages for two-parent families

Table 9.1 of Harold Luntz's "Assessment of damages for personal injury" (Third edition, Butterworths, 1990, p396) gives dependency percentages for a wife and children, in cases where the husband is the sole earner and is killed. The percentages were derived from the 1984 Household Expenditure Survey of the Australian Bureau of Statistics. The following table uses 1998-99 Household Expenditure Survey data to suggest dependency percentages for survivors in different types of two-parent family, where one of the parents dies, and all the survivors are claimants:

Table 3 : Dependency percentages for two-parent families

Income of spouse as % of income of deceased	Number children	Parent	Child	Total family
0%	0	65.6%		65.6%
0%	1	43.8%	28.1%	71.9%
0%	2	34.4%	20.8%	76.0%
0%	3	28.9%	16.7%	79.0%
0%	4	25.1%	14.0%	81.1%
0%	5	22.3%	12.1%	82.8%
100%	0	31.2%		31.2%
100%	1	23.9%	19.8%	43.7%
100%	2	20.8%	15.6%	52.0%
100%	3	18.5%	13.1%	57.8%
100%	4	16.6%	11.4%	62.2%
100%	5	15.1%	10.1%	65.6%

For example, a family may have two children, with the wife's after-tax earnings being half those of her husband. The family dependency percentage for a two-child family with a non-working spouse is 76%, and 52% if the husband and wife have identical earnings. In this case the estimated dependency percentage would be halfway between 76% and 52%, ie 64%. Note that the overall dependency percentage would decline as the children became independent.

The percentages in Table 3 may provide a starting point for assessment of damages for economic loss by survivors of a deceased earner. The derivation of these estimates, and dependency percentages for other situations, are in '"Dependency percentages for two-parent families", by Hugh Sarjeant and myself, on www.cumsar.com.au. Dependency percentages vary according to the income of the household, being lowest for households in the highest income groups.

Life expectancies allowing for future mortality improvements

Table 4 : Life expectancies in 2001 for Australian males and females

Age	*Males*	*Females*	*Age*	*Males*	*Females*
0	82.83	86.24	40	43.17	46.40
1	82.19	85.54	41	42.15	45.38
2	81.20	84.56	42	41.12	44.35
3	80.20	83.57	43	40.10	43.33
4	79.20	82.57	44	39.06	42.31
5	78.19	81.57	45	38.03	41.28
6	77.18	80.57	46	37.00	40.26
7	76.16	79.57	47	35.96	39.23
8	75.15	78.56	48	34.92	38.21
9	74.13	77.56	49	33.89	37.19
10	73.11	76.55	50	32.85	36.17
11	72.08	75.54	51	31.82	35.16
12	71.06	74.54	52	30.78	34.15
13	70.04	73.53	53	29.76	33.14
14	69.02	72.53	54	28.73	32.14
15	68.00	71.52	55	27.72	31.15
16	66.99	70.52	56	26.71	30.16
17	65.98	69.52	57	25.71	29.17
18	64.99	68.53	58	24.72	28.19
19	64.00	67.53	59	23.75	27.22
20	63.02	66.53	60	22.80	26.26
21	62.04	65.54	61	21.86	25.31
22	61.07	64.54	62	20.94	24.36
23	60.09	63.54	63	20.03	23.43
24	59.11	62.53	64	19.15	22.50
25	58.13	61.53	65	18.28	21.58
26	57.15	60.53	66	17.43	20.68
27	56.17	59.53	67	16.60	19.78
28	55.18	58.52	68	15.79	18.89
29	54.20	57.52	69	15.00	18.01
30	53.21	56.51	70	14.23	17.15
31	52.22	55.51	71	13.49	16.30
32	51.23	54.50	72	12.76	15.46
33	50.23	53.49	73	12.06	14.65
34	49.23	52.48	74	11.38	13.85
35	48.23	51.47	75	10.73	13.08
36	47.22	50.46	76	10.09	12.33
37	46.22	49.45	77	9.47	11.61
38	45.20	48.43	78	8.89	10.91
39	44.19	47.42	79	8.33	10.23

Table 4 gives life expectancies in 2001 for Australian males and females, using the improving mortality rates assumed in "Population projections 1999 to 2101" (Australian Bureau of Statistics 2000). They are higher than those in the Australian Life Table 1997-1999 (pages 93-94 of "Deaths Australia 1999", Australian Bureau of Statistics 2000), as the latter make no allowance for future mortality rate improvements. For example, the life expectancy of a 40 year old female is estimated as 46.4 years in Table 4, but as 43.01 years in the Australian Life Tables 1997-1999. With a discount rate of 3%, allowing for future mortality improvements might increase an award for future life-time care by about 4%.

Earlier versions of Table 1 have been accepted in some large NSW cases. Should they also be used in Victoria?

Fund management costs for intellectually impaired persons

In The Nominal Defendant and Gardikitios, the High Court held that the only amount which can be provided in relation to an expense incurred in managing verdict moneys is an amount directly referable to the physical impairment suffered as a result of the accident (186 CLR 49-70). Fund management costs can only be awarded where the plaintiff is intellectually impaired as a result of a defendant's negligence, or had a pre-existing impairment. Even though most of us would be unable to properly invest a large award, we cannot be paid for the costs of expert fund management.

Fund management costs can be substantial. For example, a person suffered brain damage in a NSW motor accident, and is now resident in New Zealand. After repayment of social security and past expenses, about $5.5 m was available for investment. The New Zealand Public Trustee charges fund management fees of about 1% of the fund balance each year for large funds. Allowance for these fees might have required an award of about $0.9m. The NSW Office of the Protective Commissioner charges initial fees on 4% on the first $100,000, 3% on the next $100,000, 2% on the next $100,000 and 1% on the balance. It also charges ongoing fees of 5.25% of all investment income. Allowance for these fees might have required an award of about $0.4m (the appropriate method of calculation is unclear).

By contrast, the Victorian Senior Master's (Funds in Court) Office makes no charges for fund management, or for any other service provided. Funds have largely been held in government and semi-government bonds, but reducing interest rates have resulted in greater use of equities and inflation-indexed annuities. Given this no fees policy, and the High Court's restrictive approach, are claims for fund management charges unlikely to succeed in Victoria?

Life expectancies of persons with cerebral palsy

In several recent actions by persons with cerebral palsy, the defence has obtained evidence on life expectancy from David Strauss or Robert Shavelle. They are epidemiologists working with the Californian Mental Retardation Data Base, which contains detailed information on over 200,000 persons with development disabilities. Of these, about 40,000 are diagnosed with cerebral palsy. Strauss and Shavelle select from this data base the persons who broadly match the plaintiff's age and disabilities, and fit Cox proportional hazards models to estimate the current probabilities of death for the plaintiff. The excess mortality risks for the plaintiff are assumed to gradually reduce, reaching zero at age 100.

It is difficult to argue with their conclusions, derived from a very large body of data with widely-accepted statistical methods. Additional data may however emerge from a paper by Blair, Watson, Badawi & Stanley "Life expectancy among people with cerebral palsy in Western Australia", currently submitted for publication.

Exclusion of late actuarial reports

In a recent Victorian case, an actuarial report tendered on the fourth day of a jury trial was rejected. One argument used for its rejection was that it would have doubled the claim for economic loss.

Optimal cash flow assumptions

It is often necessary to form some view as to way the plaintiff might have managed future cash flows. For example, in cases where the projected superannuation benefit exceeds the lump sum reasonable benefit limit, we normally assume that the plaintiff would take half as pension and half as lump sum. This avoids the 48.5% tax on lump sums in excess of the reasonable benefit limit. In practice, some persons may obtain better overall results by taking more as lump sums, and thus qualifying for more age pension.

Particularly for self-employed persons, company, trust and superannuation structures may be used to share income with spouses, and to defer receipt of some income until after retirement. When this process is interrupted by injury, assumptions need to be made about the amounts of income that would have flowed through different paths. Ideally, the assumptions should be simple, legal, consistent with past behaviour, provide reasonably even personal incomes before and after retirement, and be chosen so as to give the maximum possible estimated loss. A computer model of the options open to the plaintiff may be needed to select optimal assumptions.