

ACTUARIAL ASSESSMENT OF INCOME AND SERVICES
LOSS FOLLOWING A FATALITY

A CASE STUDY OF PRACTICES IN ENGLAND VS ONTARIO

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About a year ago, I did an actuarial valuation of a fatality claim for which the lawyers and the courts were having difficulty in determining whether Ontario law or U.K. law should apply. To protect the identity of the client, I won't go into the specifics other than to say that I was briefed by the U.K. solicitor as to how the valuation would be done in England, and I then did the valuation based on both Ontario and U.K. practice. The final results were only about 1% apart, and this fact resulted in a very quick settlement offer from the defendant which was very close to my recommended numbers and therefore very quickly accepted by the plaintiff.

I thought it might be instructive to spend a couple of minutes reviewing what I learned in that process, not only so you can see the similarities and differences between Ontario practice and English common law in this area, but also so that can compare against B.C. practices as just outlined by Ian and Robin.

I should start by saying that this case was very straight-forward from my perspective, with none of the complications likely to cause dispute in an Ontario court. The deceased person was a 54-year old male with a 53-year old wife who did not work outside the house and who was fully dependent on his income. The children were grown and had left the house. The man worked on a salary in the \$50,000 to \$60,000 range for an established company and there was no question as to what his current earnings level would be in the absence of his premature death. He was a member of a defined-benefit pension plan and there was no question of his retirement other than at age 65. He provided a typical level of household services for snow removal, lawn maintenance and other handyman services for which his widow must now pay others.

So, based on Ontario practices, I started with the salary which the employer had provided, including their estimate of merit increases and changes to the pay scale following his death. I projected what his total pension would be after retirement, including CPP pension as well as company pension. I deducted CPP, employment insurance and income tax to arrive at his net income before and after retirement. I then deducted 30% of his net take-home pay as the amount which he would have spent for his sole benefit while alive, leaving 70%

of net take-home pay as the amount available for household expenses and the spouse's benefit.

Note that I would have used a dependency ratio of less than 70% if the widow had worked outside the family home. There are a lot of different opinions as to the appropriate dependency ratios if that is the case, and if you want to research that issue I would suggest that you start with Chapter 3 of Christopher Bruce's text on the subject. (*Assessment of Personal Injury Damages, Second Edition*, by Christopher J. Bruce PhD, Department of Economics, University of Calgary, published by Butterworths)

At this point, let's stop and compare with the practice described to me by the U.K. solicitor. The processes are identical in England up to this point, with two exceptions:

- first, they use a dependency ratio of $66 \frac{2}{3}\%$ rather than 70%, and this ratio appears to be the same regardless of whether or not the widow had her own income.
- second, it appears that there are no actuaries who do this sort of work in England, so the lawyers either do the calculations themselves or send them out to an accountant or claims adjustor.

Anyway, the next step in the process is to calculate the past loss up to the expected settlement date and the capitalized value of the future loss of dependency income, both before and after age 65. In Ontario, I calculate it using joint life mortality from the last Canadian census, and a currently prescribed rate of interest for the year 2000 of 3% per annum for the next 15 years and 2.5% per annum thereafter. Note that these interest rates are net of inflation indexing, and that in the current case there was no reason to expect that the man's income was going to go up at anything more or less than general wage and price inflation.

In England, they used something called the Ogden life tables at 3% interest. Remember that these calculations are done directly by the lawyer or his clerk, so they need to keep it simple. The calculations are based on male mortality only, based on age last birthday. Their use results in errors in the deferred pension

calculation as well as the error in ignoring the possibility that the widow might have died first had the man not been killed. I'll come back to this in a few minutes.

So at this point we have evaluated the income loss, and we need to put a value on the loss of household services. For that purpose, I usually start from the Statistics Canada survey reproduced in Christopher Bruce's text. That survey suggests that a Canadian male who is not yet retired but who is not involved in child-raising spends an average of 10.7 hours weekly in household services, and even at the minimum wage of \$6.85 hourly this equates to \$3,811 annually.

This compares to a figure of 1,000 pounds or \$2,150 annually which the U.K. lawyer had wanted to use. I was unable to determine whether that figure is a standard allowance used in all cases in England or whether this was his estimate of a suitable amount in this case. We eventually compromised on a figure of \$2,500, and I capitalized this based on services for life using joint life mortality. U.K. practice would have once again been based on single-life male mortality with household services ending at age 65 in any event.

The final step in the calculations in Ontario is to calculate a suitable gross up of the capitalized value of future loss, on account of income tax which the widow will have to pay on interest income when she invests the settlement amount. This step is often omitted or at least postponed in the initial report, since insistence on a tax gross-up can lead to a forced and unwanted structured settlement in some cases.

U.K. practice is to ignore tax gross-up completely, but I did not determine whether is an issue of law, or whether this is simply beyond the capability of the solicitors trying to do the calculations themselves.

But here's the bottom line. The total value for the widow's past and future loss of his salary, pension and household services, excluding tax gross-up, worked out to be \$451,506 by my precise actuarial calculations. The same total based on U.K. practices, and containing all of those crude approximations and incorrect factors in order for the lawyer to be able to do it himself, was \$449,857, a difference of \$1,649 or about 1/3 of 1%.

So we can argue about single life versus joint life mortality, and whether to calculate the age to one, two or three decimal places. But the difference in mortality and the difference in interest rates turned out to be a wash. The final result varied significantly with the take-home income level, with the dependency ratio, with the expected retirement age and with the annual cost ascribed to household services. The humbling lesson was that, in cases where the facts of the case are not in doubt, that someone with no actuarial training can come within 1/3 of 1% of our result.

I have attached a single-page comparison of the Ontario and UK process, and I would be glad to use that as a reference to answer any questions.

	ONTARIO	ENGLAND
Basic income loss	Updated current income and projected pension	same
Future income	Increasing at inflation rate (usually)	same
Net take home pay	Deduct CPP, EI, income tax	equivalent
Spouse's loss 2/3% (no other income no other dependents)	70% of net take home pay	66
Household services	Based on facts of the case 2,500 to \$5,000 typical	same £1,000 typical?
Valuation date	Trial date (separate past future loss)	same
Mortality curtate	Joint life – exact age	Single -
Interest (2000 rates) net of inflation	3% p.a for 15 years 2.5% thereafter	3% p.a.
Calculated by	Actuarial present value	Table look-up
Tax gross-up?	Usually calculated, at least	None?

for negotiation purposes