

*Principles and Practice of Assessing Damages for Personal Injury
and Wrongful Death in Ireland*

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PRINCIPLES OF COMPENSATION FOR INJURY AND WRONGFUL DEATH IN IRELAND

Compensation for personal injury in Ireland is based on the principle that the wronged party should be restored to the position that he or she was in prior to the action of the other (*restitution in integrum*). Compensation must be in a single lump sum for both past and future loss, with no further redress even if losses subsequently arise that were unknown at the time of the trial.

It is, of course, often impossible to right the wrong with a cash payment so the application of the simple principle requires delicate consideration, which not only reflects the circumstances of the case but also reflects broader cultural mores¹. The latter is, of course, most apparent in the award of punitive or exemplary damages and, perhaps, even in the apportionment of liability. Accordingly, tort law in Ireland has diverged from many other territorial jurisdictions that adopt the same principle, so now the practice of assessing damages in Ireland is different on many points. We summarise the application of the principle in Ireland by referring to statutes and landmark precedents (from which the interested reader can explore the underlying rationale). However the focus in this chapter is on how damages in Ireland are computed, highlighting those assumptions to which the quantum of damages is most sensitive and those which are most contestable.

A report by the Law Reform Commission of Ireland (1996) gives a comprehensive review of the current system of awarding damages, together with its rationale and how it compares internationally. The report recommended no change to the way awards of

¹ An extensive series of Irish law-texts survive dating from the 7th-8th centuries, which reflect a very ancient Indo-European social system with remarkable similarities to traditional Hindu Law (Byrne (1994)). This legal system, known as the Brehon Laws, assigned each person an 'honour-price' (literally, 'the price of his face') depending on their rank. Recompense for any offence against the person was judged relative to the victim's honour price. There was a very extensive list of injuries (which included satire and refusal of hospitality as well as physical injury) and corresponding fines – six alone for damage to teeth. For instance, a small facial wound required a milch cow as compensation if the victim was a lord or a fleece if the victim was an apprentice (Kelly (1988) see pp. 8-9, 129-135). These laws are believed to have continued in use in Ireland until the start of the 17th century, with their end usually dated to the Flight of the Earls in 1607. From that time, the English law system was in use, modified and developed since Ireland's independence from 1922 when justice could again reflect cultural differences.

damages are calculated², but recommends provision be made for (a) an interim award of damages where liability is admitted, and, (b) for structured settlements when both parties agree. In the event, these provisions have not, as yet, been made³. While there has been other changes to the system in Ireland over the last decade or so (which we treat below), the single lump sum settlement remains the only method to extinguish the wrong.

Components of the Lump Sum

The lump sum is often sub-divided into general damages and special damages or other categories helpful to assess the overall loss. However, such sub-divisions are only notional and simply aids to arrive at the result: it is the overall quantum that must be judged by the Irish court as fair compensation⁴. This reflects the obvious fact that the loss cannot in general be decomposed into a purely mathematical problem as it is contingent on too many factors, many of which are non-monetary and some, though monetary in nature, are not possible (as yet) to model in a satisfactory manner to arrive at a lump sum of equivalent value.

The trial is often conducted in the natural way of, after establishing liability, breaking down the different aspects of the wrong to the plaintiff and determining the remedy for that wrong. The damage may be divided into pecuniary loss and non-pecuniary loss. Non-pecuniary loss includes redress for pain and suffering, expectation of life curtailed, and quality of life impaired. In addition, there is a long precedence of punitive and exemplary damages in Irish courts, and a more recent one of restitutionary damages⁵, where the plaintiff's sense of injury (or, indeed that of the law) is aggravated by the manner or motive behind the actions of the defendant. The practice of Irish courts in this latter area is summarised and discussed in the Report of Law Reform Commission of Ireland (2000), which allowed that that such aggravated,

² See paragraph 16.69.

³ The delay in implementing the recommendations suggests that the insurance industry, a politically powerful lobby group, are not unhappy with the closure afforded by the current system and, perhaps, indicates a belief that a structured settlement would not lead to an appreciably lower cost of claim.

⁴ Reddy v Bates (1984) ILRM 197.

⁵ Restitutionary damages may be defined as a monetary remedy that is measured according to the gain to the defendant, rather than to the loss to the plaintiff.

exemplary or restitutionary damages are best left as a matter for common law and its evolution in the courts.

Compensation for non-pecuniary loss clearly depends on the details on each case. We narrow the scope of this overview to how Irish courts determine the lump sum compensation for monetary loss. As determining the loss to the date of the trial is often a straightforward accounting matter, we narrow our focus further to how the lump sum compensation is estimated for future loss.

Note that the actual lump sum award is treated as a capital receipt that is not subject to tax in the hands of the recipient. However, any proceeds derived from the lump sum – by way of income or capital gain – are taxed in the normal way for all but one class of plaintiff.⁶

BRIEF HISTORY OF ACTUARIES AS EXPERT WITNESSES IN IRELAND

Actuaries advise the Irish courts on the assessment of the capital value of future financial loss. The role of the actuary has long been valued by the Irish courts, best put in a Supreme Court judgement in 1968:

"It has been decided by this court in many cases that where there is a substantial element of future loss of earnings involved with any claim the evidence of an Actuary is not merely desirable but necessary. It is immaterial whether the prospective loss is in respect of a long period and whether the period has already commenced or whether it will arise at some stage in the future. The appropriate Actuarial evidence is necessary in all these cases to enable the Jury to arrive at a reasonably accurate mathematical computation of the present value of the actual loss which they find will be incurred."

Quoted from *The Actuary in Irish Litigation Work*, Segrave-Daly (1998)

⁶ The income from the lump sum is exempt from income tax if the plaintiff is permanently and totally incapable of maintaining himself and such income is the main income (Section 5 of Finance Act, 1990).

Professional guidance for actuaries engaged in litigation in Ireland⁷ requires the actuary to assist the court by giving impartial advice “that is not modified to suit the exigencies of litigation” and confine his evidence to matters lying within his expertise and experience. Given the requirement for the actuary to assist the court, not primarily the party who engaged his services, it might seem odd that it is usual for both sides to put forward their own independent actuarial evidence. However, the briefing of the actuary by either side is generally not complete so that actuarial evidence is based on different premises of the circumstances in the case. It is not uncommon for the actuaries of both parties to meet (perhaps on direction by the court) to determine the matters that remain in dispute on the capitalisation of the loss. The matters on which opinions differ, be they either factual matters or the assumptions adopted by either expert, can then be identified and brought back to the client or the court.

Actuaries, of course, do not possess a reliable crystal ball to foretell the future. However, they do have a statutory role in advising on the management of institutions that offer benefits in the long term future contingent on survival (e.g., life assurance companies, friendly societies, pension funds) and the financial soundness of these institutions has no doubt reassured the judiciary of their expertise in this area. However, while the reputation of the profession was not unhelpful, it was individual actuaries – and no more than a handful in the early days – whose evidence impressed the courts and forged for the profession a dominant role in assessing future financial loss.

One of the actuaries pioneering this role of expert witness in the Irish courts was Brian S. Reddin. Due to his reputation in this regard, he was the nominated member by the Faculty of Actuaries on the original [UK] Ogden Committee. The Ogden Committee produced their first report and actuarial tables in 1984 to assist in assessing damages in Great Britain⁸. The key recommendation of the Ogden Committee was that the rate of discount applied to discount future pecuniary loss (that rises with inflation) should be the market-determined real yield on index-linked stock guaranteed by the government at the time. This approach was unanimously agreed by the committee, who went as far as claiming that “the reasoning which leads to such

⁷ Society of Actuaries in Ireland, Guidance Note 24 (ROI).

⁸ The Ogden Tables are now in their Sixth Edition, being updated and extended in 1994, 1998, 2000, 2004 and 2007.

figures could not be faulted”⁹. That reasoning was the basis on which actuarial advice was given to the Irish courts at that time. The ‘Ogden Tables’, of course, eventually proved influential in England when the approach was endorsed by the House of Lords¹⁰. However, back in 1984, the actuarial evidence was neither common nor highly regarded in the UK courts, or, as Lord Justice Oliver put it at the time:

"as a method of providing a reliable guide to individual behaviour patterns or future economic and political events, the predictions of an actuary could be only a little more likely to be accurate (and would be certainly less entertaining) than those of an astrologer".

Auty and Others v National Coal Board (1984) 1 WLR 784

Overall, it can be said that, *ceteris paribus*, the award in respect of future financial loss tended to be lower in the UK than Ireland before the adoption of the actuarial approach encapsulated in the Ogden tables.

A good summary of the practice of assessing damages in UK courts at the time is given in Owen and Shier (1986) and Martin *et al.* (1997) and a contrast with the system in Ireland is given in Section II of the Report of Law Reform Commission of Ireland (1996). The evolution of actuarial practice on the assessment of damages in Ireland can be traced through Segrave-Daly (1974), Delany (1990), and Segrave-Daly (1998).

One would imagine that the UK and Irish method of valuing future pecuniary loss are now identical, as they are informed by the same actuarial principles summarised in the Ogden Tables. However, both jurisdictions have departed from the reasoning “that could not be faulted” to a degree that is material to the size of the award computed. In the UK, the Lord Chancellor under powers conferred on his office by section 1 of the Damages Act 1996, prescribed a rate of 2.5% as the rate of discount to apply in putting a present value of future pecuniary loss in injury cases since June 2001¹¹,

⁹ Introduction to First Edition of Ogden Tables (or strictly, *Actuarial Tables with Explanatory Notes for Use in Personal Injury and Fatal Accident Cases*. Government Actuary’s Department, London HMSO).

¹⁰ Wells v Wells [1999] AC 345.

¹¹ The Damages (Personal Injury) Order 2001, SI 2001/2301

which thereby broke the link with the real yields on index-linked stock¹². In Ireland, the market in index-linked securities failed to develop from the early 1980s. With no freely traded market in such securities, it is not possible to estimate satisfactorily the secure real yield obtainable from time to time or, materially, manage the risk involved in investing the lump sum award to replicate the lost real cashflows in the future. In short, there are no freely traded securities in Ireland to match the inflation-linked loss of many plaintiffs, so determining the fair quantum of award is considerably more uncertain. Despite petitions from, *inter alia*, the Society of Actuaries in Ireland, the Irish government has failed to issue index-linked bonds as part of its funding programme to help the very large number of investors manage the risks in achieving a secure real return in the future – from successful plaintiffs to pension savers and others. These, less than ideal developments, have influenced how damages have come to be assessed in Ireland.

ACTUARIAL TECHNIQUES APPLIED IN THE ASSESSMENT OF DAMAGES

Damages for future monetary loss are generally computed using a ‘multiplicand’ and a ‘multiplier’, with the initial quantum of loss found by multiplying the two figures. The multiplicand is the estimated monthly (or weekly or annual) loss and the multiplier is the capitalised value of a monthly (or weekly or annual) loss of €1. If expected losses are dependent on different contingencies, reoccur at different frequencies, or increase at different rates, then separate multipliers are computed for each category of loss and the overall capitalised amount is the sum of their products.

The multiplicand

In an injury case, the monetary loss would include loss of earnings and perquisites of employment, loss of pension benefits, additional healthcare and living expenses arising from injury.

¹² The Lord Chancellor’s reasoning for fixing the rate at 2.5% (very close to the real yield on index-linked government stock prevailing at that time) are summarised in *Setting the Discount Rate: Lord Chancellor's Reasons* (27 July 2001). One of the reasons was “the fact that yields in Index-Linked Government Stock appear to be artificially low”.

The onus is on the plaintiff to take reasonable measures to minimise the loss by, say, finding suitable alternative employment. Accordingly, the calculation is not strictly made on the actual loss but on the loss when minimised. This is qualified somewhat further as an Irish statute¹³ stipulates that the hypothecated ‘loss’ or better, the multiplicand, is not to be reduced by the proceeds of a contract of insurance or, in certain circumstances, by social insurance benefits payable, as a result of the wrongful action (presumably on the justification that plaintiffs provided for these latter benefits themselves).

Sometimes precision is impossible in determining the loss sustained, such as the future loss of earnings for a child incapacitated by an accident long before their career path is clear. Even in these cases, the Irish courts generally impute a loss of earnings from when the child could have been expected to enter the workforce, to be capitalised with a suitable multiplier.

The loss of earnings and other losses determined above are all net of income tax, social insurance contributions or any other deductions that would have been payable by the plaintiff. The offsets are similarly the net receipts in the hand of the plaintiff.¹⁴

An interesting issue arises if the plaintiff’s life expectancy has been curtailed as a result of the injury. In that case, medical expenses and other losses are estimated on the basis of the plaintiff’s current life expectancy but the loss of earnings calculation is based on the pre-injury life expectancy. The reasoning behind this approach was explained in the precedent set by the Supreme Court in 1966¹⁵:

“In my opinion the period or the length of time by which the expectation of life has been reduced must also be taken into account, though of course, for that particular period the sum to be considered would not be the gross loss of wages for the period but the surplus, if any, after providing for

¹³ Section 2 of the Civil Liability (Amendment) Act, 1964; Social Welfare Consolidation Act 1993.

¹⁴ *Cooke v Walsh* (1984) ILRM 208.

¹⁵ Strictly, the plaintiff in an injury case is being compensated for an impairment of his or her ability to earn, which may be estimated as the capitalised value of a lost income stream (*Justice Barr in Phelan v Coillte Teoranta* [1993] 1 IR 18).

what it would have cost to live during those years if he had not had the accident.”

Justice Walsh’s judgement in *Doherty v Bowater Mills Ltd* quoted in *Delany* (1990)

For wrongful death, a member of the extended family who is dependant on the deceased can sue for remedy for loss of financial support or services, less any gains accruing as a result of the premature death¹⁶. The actuarial principles are thus very similar to the injury case but now due allowance must be made for both the mortality of the dependant and the deceased, where it not for the wrongful death (with the latter assumed from the time of death rather than the time of trial). It is often a matter of some practical difficulty to assess the reasonable pecuniary loss suffered as a result of the wrongful death - for example when the deceased is a mother of young children.

The multiplier

The multiplier to be applied to the multiplicand is to capitalise the loss of a € per month (or other frequency of the loss) over the total period of the loss. To calculate the multiplier the actuary must make assumptions on

- (i) the probability that each future payment is made. This typically requires assumptions on the mortality rates for the plaintiff but it could involve other contingencies.
- (ii) The amount by which the net loss of € in present day terms might increase to by the time of payment. This assessment, in turn, typically requires assumptions on the general level of future inflation, the general level of real salary increases (that is salary increases above inflation), the probability that the salary level of the plaintiff might have changed other than by the general level as a result of, say, promotion.
- (iii) The rate discount that must be applied to each future payment so that its present day value is determined.
- (iv) The rate and manner of taxation of income and capital gains in the future, both to determine the net future loss and the net proceeds from

¹⁶ Redress for wrongful death are taken under the Civil Liability Act, 1961.

investing the compensating lump sum to replicate those net future losses.

- (v) Other assumptions, such as investment expenses, loss ceasing on contingencies other than death or reaching a certain age (such as on marriage).

When all the above assumptions are made it is a straightforward computation to determine the appropriate multiplier to apply to the multiplicand.

We treat in turn the key considerations in setting the assumptions required (i)-(v), under the headings: *Mortality*, *Discount Rate* (taking in (ii) and (iii)), *Taxation*, and *Other Contingencies*. In the discussion we highlight the sensitivity of the multiplier to the assumptions.

Mortality

Mortality rates have declined markedly over the world in the twentieth century. In the case of Ireland, life expectancy at birth was 49.3 years for males and 49.6 years for females in 1900-1902 but by the close of the century life expectancies had increased to 75.1 years for Irish males and 80.3 years for females (Central Statistics Office (2004)). Accordingly, the rate of increase of life expectancies averaged 0.26 years for males and 0.30 years for females with the passage of each calendar year over the 20th century.

Mortality improvements over the last century were not, of course, uniform over either calendar year or year of age. At the start of the last century mortality improvements were more pronounced at the earlier ages with little or no improvements discernible at higher ages. As the century progressed, improvements were evidenced at all ages and most especially at the older ages in the last decades (Whelan (2008)).

Up until recently, the UK actuarial profession issued mortality tables that incorporated an allowance for future mortality improvements but this practice has ceased since 2000 because of dramatic declines in mortality rates and the consequent very significant uncertainty inherent in any single projection.

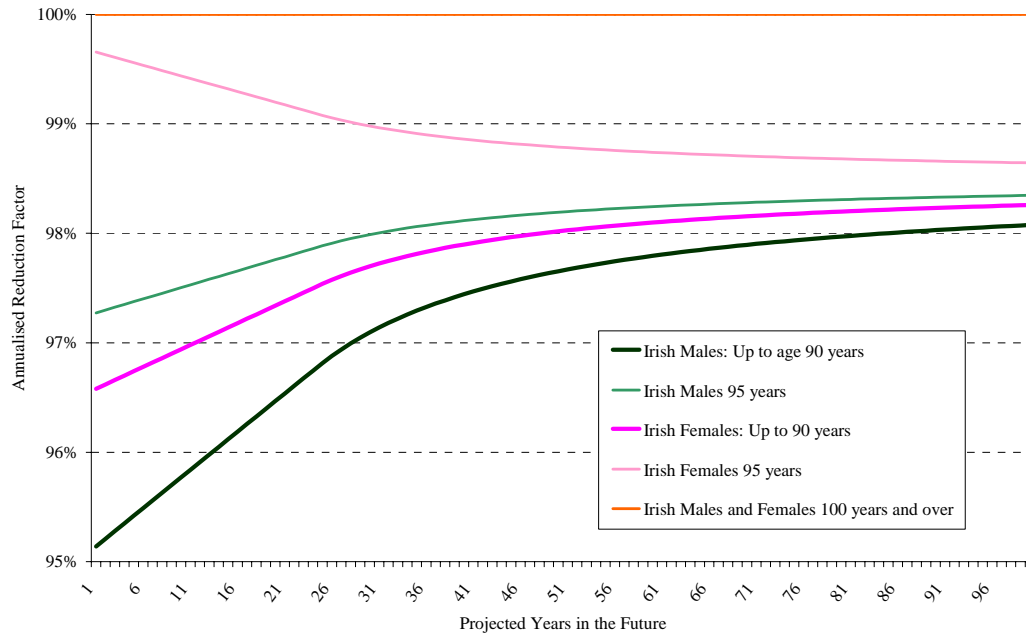
To date, actuaries in Ireland do not explicitly allow for future mortality improvements in calculating the multiplier. Instead, they either make an implicit allowance for it, by basing their calculations on a mortality table that is believed to have rates lighter than believed appropriate for the individual in question¹⁷, or ignore it altogether (i.e., assume no mortality improvements in the future)¹⁸.

Given the recent accelerating improvements observed in mortality rates, especially at advanced ages, it is of interest to examine how sensitive the multiplier is to projected improvements. To do this we compare how the multiplier changes (a) when it is based on the most recent Irish population mortality experience (Central Statistics Office (2004)) and (b) when it is based on the projected mortality rates used in the official forecasts of the population and labour force in Ireland (Central Statistics Office (2008), Whelan (2008)). It should be noted that the official mortality forecasts require a separate mortality table for each age and gender as mortality rates are forecast to reduce by different rates depending on sex, age in calendar year 2005, and projected year since 2005. Figure 1 summaries how mortality rates in Ireland are forecast to reduce from the rates observed in a three year period centred in calendar year 2005.

¹⁷ For example, by basing their calculations on the mortality rates of insured lives rather than population mortality rates.

¹⁸ More recent editions of the Ogden Tables make explicit allowance for mortality improvements, using the mortality rates from the latest available population projection by the UK Government Actuary's Department. Earlier editions of the Ogden Tables did not make any allowance for improvements, either explicitly or implicitly, as the mortality assumed was the simply the latest population mortality rates available.

Figure 1: Mortality Reduction Factors (Annualised) for each age, years forecast from Calendar Year 2005, and gender, used in Official Population Projections of Ireland



The multiplier at different ages and discount rates are set out in Appendix 1. In Table 1 summarises the financial significance of allowing for future mortality improvements.

Table 1: Percentage Increase in Multiplier for loss of one unit per annum, when allowance is made for Future Mortality Improvements (see text)

Gender	From Age (years)	Discount Rate 0%		Discount Rate 2%		Discount Rate 4%	
		Annuity to 65	Annuity for Life	Annuity to 65	Annuity for Life	Annuity to 65	Annuity for Life
<i>Males</i>	25	2%	25%	2%	13%	1%	7%
	45	2%	30%	2%	19%	2%	13%
	65	-	37%	-	29%	-	23%
	85	-	36%	-	33%	-	31%
<i>Females</i>	25	1%	17%	1%	9%	1%	4%
	45	1%	20%	1%	13%	1%	8%
	65	-	23%	-	18%	-	14%
	85	-	18%	-	17%	-	16%

It is clear it makes little difference for annuities terminating at age 65 years, given the already low probability of dying before that age. However, for life annuities the effect

is material - being more material with increasing age of claimant, with the lower the discount rate employed, and for males than females. So allowing for mortality improvements is especially significant when valuing retirement benefits foregone or other anticipated losses at advanced ages.

Of course, forecasting mortality improvements is more an art than a science and any projection, including the official forecasts, are little other than educated guesses. However, the very long history of improvements and their continuing trend, suggest that some allowance should be made and the official projections are as reasonable to use as any other.

The Discount Rate

Irish actuaries subscribe to a market-consistent valuation principle that can be summarised as: *If there exists a freely traded asset whose proceeds exactly reproduce the pecuniary loss then the market price of the replicating asset gives the value of the claim.* This principle is essentially equivalent to the ‘Law of One Price’ of economists or the Non-Arbitrage Principle of financial economists.

So suppose that the plaintiff’s loss is a series of future inflation-linked payments that can be replicated by a portfolio of state guaranteed index-linked bonds, then the above principle says that the market value of the portfolio of bonds gives the size of the compensatory lump sum. This solution not only derives a value for the loss but also gives a method to invest the lump sum to restore the plaintiff’s lost pecuniary cashflows. As noted earlier, this is the principle underlying how the Ogden Committee recommended that their tables be employed.

The principle has the pre-condition that such assets are ‘freely tradeable’. This might be rephrased as saying that the market price is set between a willing buyer and a willing seller, both possessed of all relevant information. A more practical interpretation is that the market price is a realistic guide to the price one can actually buy or sell the security at, in reasonable volumes, within a reasonable timeframe. For, if the latter is the case, then any expert opining to the court that the plaintiff should receive more (or less) than the amount so determined is saying that such an index-

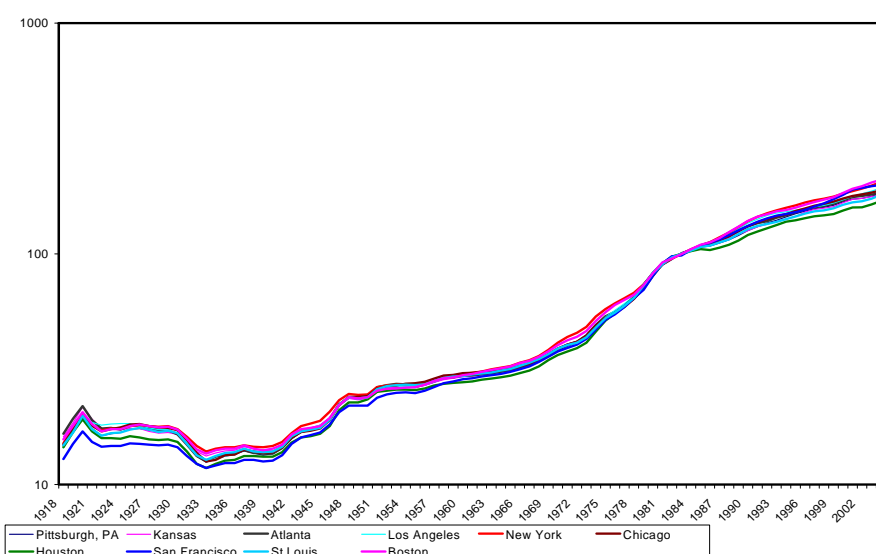
linked portfolio should be bought (respectively, sold) and the portfolio recommended by the expert be sold (respectively, bought) which would give, on the expert's opinion, a profit. In fact, if such profits can be made then in theory profits of any magnitude could be obtained from the market by repeating the above trade indefinitely. This logic could be used to undermine the testimony.

In Ireland, unlike the UK, US and many other regions, there is no freely-traded market in index-linked bonds. However, the French government has, since 1998, issued some bonds with payments linked to French inflation and some bonds with payments linked to eurozone inflation (excluding tobacco). As Ireland has been part of the eurozone since its establishment at the end of 1999, the Irish plaintiff can consider investing in French index-linked bonds with no currency risk. The risk with such an investment is how French or eurozone inflation might differ from Irish inflation in the future.

Studies of inflation levels in different regions with the same currency suggest that inflation rates do not differ significantly over time. By way of illustration, Figure 2 plots the inflation indices in a selection of ten US cities for a period of almost nine decades. It is difficult to tell the lines in the graph apart – showing that the inflation experience is very similar. In fact, the difference in the annualised inflation rate from the highest to the lowest is 0.4%¹⁹.

¹⁹ Another example is inflation in Ireland and the UK over the period from political independence of Ireland at the end of 1921 to the breaking of the fixed exchange rate in early 1979. Over the period the accumulated difference was less than 7%, or, equivalently, averaged less than 0.2% per annum. This remarkably similar inflation experience was recorded despite our different standards of living, our different consumption preferences, and our differing taxation regimes.

Figure 2: Inflation Indices from ten US cities, 1918-2004 [log scale]

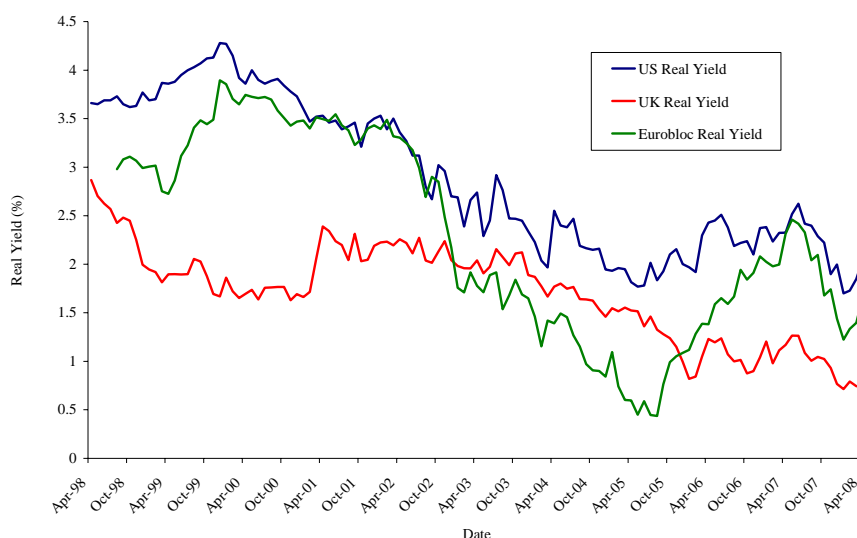


Source: US Department of Labour

It can, I believe, be reasonably maintained that, over the longer term, the average inflation rates within the countries of the eurozone should be reasonably close and, over such long periods, it is not obvious which region would have higher or lower inflation. Accordingly, investing in French (or other sovereign eurobloc) index-linked stock to match Irish inflation-linked cashflows does involve an element of risk, but the risk is not that significant. Arguably, such an investment strategy is the optimum strategy of all possible strategies in the sense that it minimises the risk in replicating the lost cashflows. Accordingly, the real yield on French (or other sovereign eurobloc) index-linked bonds of suitable term can be used as the real discount rate to apply to future inflation-linked losses in Ireland to estimate the lump sum.

Another argument, somewhat looser, is to suggest that, now that a worldwide market has developed in index-linked bonds, we can observe the market's expectation of real returns over different terms from low risk investments. As an Irish plaintiff must invest in such capital markets, we can use observed real yields from time to time to inform real return expectations. This requires that we pay attention to real yields in different currencies, not just for the euro. Figure 3 sets out the real yield on sovereign guaranteed index-linked bonds in three major currencies over the last decade.

Figure 3: Real Yields on State-Guaranteed US, UK and Eurobloc Bonds, Decade to End April 2008.



The real yields are not identical and have been apart by as much as a full 2% in late 1999/early 2000 when UK rates were comparatively low. The average real yield rate over the decade was 2.9% in US, 1.7% in UK and 2.3% in Eurobloc (9.7 years). These considerations suggest that a real yield in the range 2-3% seems reasonable over the last decade.

Over the last two decades, the Irish courts have generally opted for a real rate of interest of 4% but, more recently, a rate of 3% above inflation has been settled upon since April 2002²⁰, which was coincidentally close to the real yield on French index-linked bonds at that time. Other jurisdictions tend to settle on different real rates of return with, for instance, the real rate prescribed for use in courts in England and Wales set at the lower rate of 2½% since June 2001, as previously mentioned. Should these rates be updated to reflect more recent developments in index-linked markets then we can expect them to be somewhat lower based on the arguments above and Figure 3. At the time of writing real yields are about 2.5% in Eurobloc, 3.0% US, and 1.3% in UK, 2.6% in Canada, and 2.0% in Sweden²¹.

The current precedent of the real rate of return to use in discounting was set at 3% in Ireland back in April 2002 but not by reference to the real yield on French or other index-linked bonds. In that case of *Luke Boyne v Bus Átha Cliath and James*

²⁰ Luke Boyne-v-Bus Atha Cliath & James McGrath, April 2002, No. 2000/12133p.

²¹ From Financial Times, 18th November 2008.

*McGrath*²², Justice Finnegan (President of the High Court) ruled that, as there were no index-linked stock available in this jurisdiction, a prudent investor would invest in a mixed portfolio of higher risk equities and lower risk gilts. He acknowledged that the portfolio mix between these two asset classes would depend on the particular circumstances of the case but held, for the plaintiff Mr Boyne, a portfolio consisting of 70% in equities and 30% in gilts was prudent and would reasonably mitigate the damages. On the basis of evidence presented, he judged that the real rate of return on such a portfolio would be 3%.

Of course, it is difficult to estimate the real return from a portfolio of risky assets – otherwise the investment would not be termed ‘risky’. Table 3 summarises the annualised real returns to local investors delivered by the different markets over 101 years from 1900, with particular attention to those markets on which Irish investors tend to focus.

Table 2: Annualised Real Returns on Major Markets and Inflation (Local Currency), 101 Years Ending 31st Dec. 2000

Market	Equity	Bonds	Cash	Portfolio of 70% Equities/30% Bonds	Inflation
	% p.a.	% p.a.	% p.a.	% p.a.	% p.a.
Ireland	4.7	1.0	0.7	3.6	4.5
UK	5.8	1.3	1.0	4.5	4.1
US	6.7	1.6	0.9	5.2	3.2
Japan	4.5	-1.6	-2.0	2.7	7.6
Netherlands	5.8	1.1	0.7	4.4	3.0
Germany	3.6	-2.2	-0.6	1.9	5.1
France	3.8	-1.0	-3.3	2.4	7.9
Italy	2.7	-2.2	-4.1	1.2	9.1
Spain	3.6	1.2	0.4	2.9	6.1

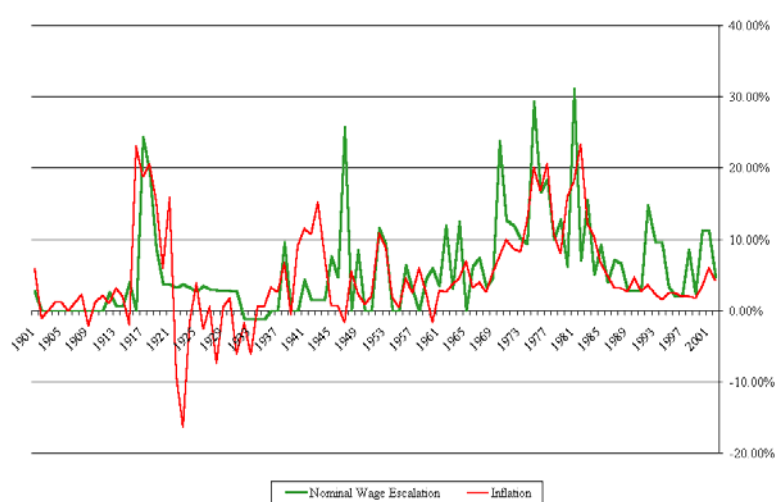
Sources: Figures taken from Tables 4-1 and 5-1 in Dimson *et al.* (2002) and, for Ireland, from Whelan (2002). Figures for Germany exclude the two-year hyperinflationary period of 1922-23. If this episode was included then German inflation would go up to an annualised rate of about 34%, cash returns fall to -19% real p.a, bond returns to -8.5%, and equities to 4.5% real p.a. (Dimson *et al.* (2000)).

²² For a concise summary of the case, see Hall (2002).

The table suggests that 3% is not unreasonable, but neither would 4% or 4.5%. It must also be borne in mind that the real returns crucially depend on when the original investment was made (in the table at the start of 1900) and when encashed (in the table at the end of 2000). There is a very large variation in the returns for other periods. The crux of the issue is that the proceeds of a risky portfolio are not transparent and experts can differ in their estimates of likely real returns by a margin that is very material when used to quantify the lump sum²³. Accordingly, the better approach is probably the one identified earlier that identifies the least risk strategy to replicate the desired cashflows and then estimates the market value of that portfolio.

Note that our considerations so far have been on the best approach to identify the real return when the lost cashflows rise in line with consumer price inflation. Typically, a large component of future monetary loss, whether in an injury or fatal case, is in respect of loss earnings (or replacement services or medical care). The general level of earnings rise in line with general salary inflation, not general price inflation. Over the last century and longer, wages have risen faster than inflation, a key factor leading to the dramatic rise of living standards of workers over time. Figure 4 shows the year-on-year change in the minimum hourly rate of carpenters in Ireland compared with year-on-year inflation while Table 3 summarises the annualised increase in wages above inflation over periods to the end of calendar year 2000.

Figure 4: Nominal Wage Escalation (Carpenters) and Inflation in Ireland, Year-on-Year over 20th Century



²³ For a discussion on the range of expert opinion on the real return from equities and bonds over the long term, see the Appendix in Whelan (2007).

Table 3: Real Irish Wage Rates (Carpenters) and its Variability, Periods Ending End 2000

Years	Ending	Nominal	Real	Of Real Wage Increase			
2000		Wage	Wage	Average	SD	Min.	Max.
		Increase	Increase				
25		7.9%	1.7%	1.8%	5.5%	-13.2%	10.9%
50		8.1%	1.7%	1.8%	5.1%	-13.2%	15.1%
75		6.4%	1.3%	1.5%	6.2%	-13.2%	27.9%
100		5.7%	1.1%	1.3%	6.5%	-18.7%	27.9%
Since Start 1900		5.6%	1.0%	1.2%	6.5%	-18.7%	27.9%

Source: See Whelan (2002).

The table confirms the reasonably stable relationship, with wage increases being on average 1% to 2% p.a. above inflation over the long-term. We can conclude from this analysis that if allowance is to be made for increases in line with wage increases rather than consumer price inflation then the discount rate should be of the order of 1% to 2% p.a. lower. Many projections of the Irish economy assume salaries will tend to rise by 2% real per annum over the long term (e.g., Pensions Board (2005) and (2006)), presumably incorporating a further modest increase due to skill enhancement with experience. A reduction in the discount rate by 2% anywhere in the range 0% to 4% increases the lump sum by about 40% for a 25 year old (male or female) and by about 20% for a 45 year old, for a regular loss up to age 65 years. Irish actuaries will allow for increases on a promotional scale if that is deemed reasonable but do not typically allow for a general level of wage escalation above price inflation.

Taxation

“The calculations of the actuary, which are no doubt mathematically precise, assume, *inter alia*, that, for the lifetime of the plaintiff (something over 50 years) the current rates of taxation will be maintained for the entire period...”

Judgement of Griffin J. of Supreme Court, *Griffiths v Von Raaj* (1985) ILRM 582.

The loss to the plaintiff is the estimated loss net of tax, social insurance, and other deductions. The proceeds of the lump sum are subject to tax in the normal way on

both income and capital gains²⁴. Accordingly, the actuary needs to assume future tax rates, or future average tax rates, over the term of the loss. No clear precedent has as yet been set by the courts in Ireland on an acceptable approach. Irish actuaries typically assume that the real burden of tax and other deductions will remain the same as their current levels and base their calculations on current rates (following a judgement in English Law²⁵). That is, actuaries estimate the ratio of net income to gross income at the current time and assume that that ratio will remain unaltered into the future. On this basis, an estimate of the future net loss can be made.

To make allowance for tax on the investment income of the lump sum, the actuary will first estimate the lump sum at a real discount rate that makes no allowance for such tax. As noted earlier, the real discount currently used is 3% per annum. The annual income tax payable on the interest of the lump sum is estimated (i.e., income tax payable on 3% of lump sum, given the other assumed income of the plaintiff) and so the net real income derived from the interest on the lump sum is determined. The ratio of the net real interest income to the lump sum gives the net real interest rate - a figure of 3% or less at the current time. The multiplier is now recalculated using a discount rate set equal to the net real rate: this (higher) multiplier is the appropriate one to use to allow for tax on investment income.

Note that the approach to estimating the future net loss to the plaintiff, on the one hand, and calculating the multiplier to allow for future income tax on the interest proceeds, on the other, are mutually consistent. If a different level of income tax is deemed appropriate in estimating the future net loss then the same rate should be used in estimating the appropriate multiplier. If tax rates different from the current ruling rates are used then net future loss will be higher or lower but the appropriate revised multiplier will move in the opposite direction - be lower or higher.

Assumptions on the level and manner of taxation in the future are necessary to make, as the Irish courts have determined that the net future loss is to be made good from the net future proceeds of the lump sum. The quantum of damages is sensitive to the assumptions made in this regard, but there is little justification for, and therefore

²⁴ Except for a very restricted class of plaintiff – see earlier.

²⁵ *British Transport Commission v Gourley* (1955) UKHL 4, 3 All ER 796.

confidence in, any particular set of assumptions. The actuary, without giving an opinion, makes a pragmatic assumption so the figures can be computed, highlights the assumptions underlying the figures, and is willing to provide figures on any alternative basis preferred by the court. Few would disagree with the Law Reform Commission of Ireland (1996) when it states that “the position as regards estimating future income tax rates is still uncertain” (para. 2.46).

Other Contingencies

The actuary’s calculations are based on an oversimplification of the plaintiff’s financial future. Typically, only allowance is made for mortality and interest and the calculations do not “take into account any risk of unemployment, redundancy, illness, accident or the like. It assumes that the Plaintiff, if uninjured, would have continued to work, week in week out, until retirement and would have in effect guaranteed employment at a constantly increasing annual rate of wages until retirement or prior death.”²⁶ We can add to the list many other possibilities not modelled – a change in retirement age in the future, change of occupation, medical advances in the future so incapacity from the injury is reduced, etc.

Accordingly, the actuarial evidence is only a guideline to the court. In view of the factors ignored, the court will typically make a deduction from the quantum calculated by the actuary to allow for these other possibilities, the deduction known as the ‘Reddy v Bates discount’. The extent of the discount depends on many factors particular to the case (e.g., level of overtime earnings, industry sector of employment, etc)²⁷ so that the overall quantum of damages is judged fair compensation.

CONCLUSION

Actuaries in Ireland have come to be regarded over many decades as necessary to help the courts quantify the capitalised value of future pecuniary loss in injury and fatal

²⁶ From Judgement of Justice Griffin in Reddy v Bates (1984) ILRM 197.

²⁷ The discount would, coincidentally, generally be within the broad range estimated for such contingencies in the Sixth Edition of the Ogden Tables.

accident cases and, though the Ogden Tables, have influenced developments in the UK. The actuary employs a relatively straightforward approach that emphasises the key assumptions to which the quantum of damages is particularly sensitive. He outlines how the uncertainties inherent in estimating a lump sum for future pecuniary loss can be quantified and the risks managed. More sophisticated models are simply not warranted as they would detract from the more financially significant decisions the court must make.

There has been change over the last few decades to how damages are assessed in Ireland, change designed on the whole to reduce the cost of the awards. Two decades ago, juries were abolished in High Court actions in respect of personal injury or wrongful death²⁸. The Personal Injury Assessment Board was established in 2004 to provide a quicker and less expensive (voluntary) alternative to assessment of compensation for personal injuries arising either in the workplace, as a result of a motor accident, or due to a public liability accident. Some, including a Professor of Law at Trinity College Dublin, have argued that the reaction to the previous compensation culture has now gone too far and “tort law is now in a state of crisis” (Binchy (2004)).

However, over the years, there has been little change to the way the lump sum is calculated by actuaries. Two initiatives have reduced the award in certain cases – the move to make certain social insurance payments deductible from the claim²⁹ and, in certain circumstances when the claims can be very high, making tax free the investment proceeds of the lump sum. Neither of these developments could reasonably be described as a leading to a crisis. But, of course, the cost of justice in Ireland is not only the quantum of damages to the plaintiff. Legal costs and experts fees add another 46% on average to the cost of a claim in Ireland³⁰.

²⁸ Courts Act, 1988.

²⁹ See Law Reform Commission of Ireland (2002).

³⁰ From website of the Personal Injury Assessment Board, www.injuriesboard.ie. This assessment is supported by Healy (2002).

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APPENDIX 1

Table 1: Multiplier for loss of one unit per annum, based on ILT 14 Males and Females

Gender	From Age (years)	Discount Rate 0%		Discount Rate 2%		Discount Rate 4%	
		Annuity to 65	Annuity for Life	Annuity to 65	Annuity for Life	Annuity to 65	Annuity for Life
<i>Males</i>	25	38.32	51.25	26.69	31.57	19.64	21.55
	45	19.06	32.33	15.80	23.25	13.32	17.61
	65	-	15.36	-	12.81	-	10.89
	85	-	4.61	-	4.29	-	4.02
<i>Females</i>	25	39.06	56.01	27.11	33.34	19.89	22.27
	45	19.41	36.59	16.07	25.45	13.52	18.8
	65	-	18.74	-	15.19	-	12.62
	85	-	5.81	-	5.34	-	4.93

Table 2: Multiplier for loss of one unit per annum, based on cohort projected population mortality from 2008.

Gender	From Age (years)	Discount Rate 0%		Discount Rate 2%		Discount Rate 4%	
		Annuity to 65	Annuity for Life	Annuity to 65	Annuity for Life	Annuity to 65	Annuity for Life
<i>Males</i>	25	39.26	63.98	27.20	35.69	19.93	23.00
	45	19.47	41.93	16.11	27.75	13.55	19.84
	65	-	21.04	-	16.55	-	13.43
	85	-	6.27	-	5.72	-	5.26
<i>Females</i>	25	39.51	65.71	27.35	36.31	20.03	23.25
	45	19.60	43.74	16.21	28.64	13.62	20.31
	65	-	22.99	-	17.91	-	14.41
	85	-	6.85	-	6.23	-	5.7