CASE NOTE

Actuarial assessment of damages in personal injury litigation in Hong Kong: *Chan Pui Ki (an infant)* v *Leung On*

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When assessing future pecuniary loss in personal injury litigation, courts often use the multiplicand/multiplier approach. The objective is to calculate a lump sum amount to compensate the plaintiff for future loss of earnings and to cover a stream of future expenses. The lump sum is computed as the product of a multiplicand and a multiplier. The multiplicand (the future annual loss of income, and annual consequential expense, such as cost of care) is established by evidence put before the judge, who then has to decide an appropriate multiplier. The multiplier is used to discount the future pecuniary values into a present lump sum amount. It depends on the inflation rates, the general mortality pattern of the population at large, investment returns, taxation and some other factors reflecting contingencies other than mortality.

Conventionally, the Hong Kong courts followed the old English authorities in choosing multipliers. Most judges select multipliers by reference to a spread of multipliers in comparable English and Hong Kong cases. This conventional approach was first challenged in the Hong Kong Court of First Instance in 1995, in *Chan Pui Ki (an infant)* v *Leung On*.[1] The trial judge abandoned the conventional method of choosing multipliers and admitted actuarial

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1 [1995] 3 HKC 732.

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evidence to calculate the appropriate value. However, this decision was subsequently reversed by the Hong Kong Court of Appeal in 1996,[2] which held that the conventional multipliers for the calculation of loss of future earnings should be maintained. The Court of Appeal also discouraged any further use of expert evidence given by economists and actuaries in Hong Kong personal injury litigation. In contrast, the House of Lords in England recently made a landmark decision in *Wells* v *Wells*.[3] It approved actuarial evidence as the primary method of assessing future pecuniary loss. This case note examines the experience of Hong Kong in admitting actuarial evidence in personal injury litigation, and discusses the legal and practical implications of *Wells* v *Wells* in Hong Kong.

Chan Pui Ki: the Court of First Instance

Chan Pui Ki is a milestone of personal injury litigation in Hong Kong. Prior to this, there were no Hong Kong cases which let expert evidence given by actuaries and economists canvass the appropriateness of conventional discount rates and conventional multipliers.

Miss Chan Pui Ki was knocked down by a double-decker bus in 1989 at the age of 10, and suffered severe head injuries. The plaintiff invited the Court of First Instance not to adopt the conventional multiplier, but to receive actuarial evidence as to what was an appropriate multiplier. The plaintiff argued that the fundamental principle of law was that compensation should, as nearly as possible, put the party who had suffered in the same position he would have been in if he had not sustained the wrong.[4] The conventional multipliers were only appropriate to discount rates of 4–5% (*per* Lord Diplock in *Cookson* v *Knowles Coal*[5]). The discount rate is the differential between the rate of investment return and the wage inflation for the period of the plaintiff's probable working life. It is essential to the actuarial formula in the calculation of multipliers. The plaintiff introduced evidence showing that in present day Hong Kong, the rate of real return on investment over wage increase falls below the rate of 4–5%. Thus, the conventional multiplier which was based on that range of return was not capable of giving the plaintiff a fair compensation, and covering her loss of earnings measured at the date of the trial and the amount by which future annual earnings would increase above

2 [1996] 2 HKC 565.
3 [1998] 3 WLR 329.
4 *Lim Poh Choo* v *Camden Health Authority* [1980] AC 174 at 187E *per* Lord Scarman; *Livingstone* v *Rawyards Coal Co* (1880) 5 App Cas 25.
5 [1979] AC 556 at 571G.

HeinOnline -- 4 Int'l J. Evidence & Proof 195 2000

the normal inflationary increase. Hence, the multiplier had to be increased in order to give the plaintiff a fair compensation.

The trial judge, Mr Justice Cheung, revolutionarily admitted the actuarial evidence introduced by the plaintiff. He chose 30 as the multiplier, based on a discount rate of 2.7%. In other words, the court assumed that the plaintiff would invest her money and obtain a return of 2.7% over inflation. The multiplier of 30 also reflected consideration of the various 'vicissitudes of life', chiefly mortality, illness and redundancy. The conventional upper limit of the multiplier based on previous case law, namely 20, was abandoned. The award for future loss of earnings by the Court of First Instance was:

HK$120,900 (multiplicand)	×	30 (multiplier)	=	HK$3,627,000.

Mr Justice Cheung said:[6]

> Short of picking a figure from the air, the only possible way of calculating the appropriate multiplier is by the assistance of expert evidence. It should be noted that the use of actuarial evidence has been accepted by the court in the past. Lord Denning MR in *Hodges v Harland & Woolf Ltd* [1965] 1 WLR 523 at 526D-E held that: ... loss of future earnings ... is, of course, a proper head of compensation. The evidence receivable depends on the circumstances. The judges do take actuarial considerations into account ... If the evidence of an actuarial would be helpful in any case, I know of no rule of law which prevents it from being entertained and considered.

The Court of Appeal

The case went before the Court of Appeal in 1996.[7] The appeal was regarded by the Hong Kong legal profession as a test case for challenging the conventional approach of the assessment of damages for future loss of earnings. The Chief Justice at that time specially convened a five-person court to hear the case. The Court of Appeal ruled that the conventional approach for selecting multipliers should be restored. It also discouraged any further use of expert evidence given by economists and actuaries in Hong Kong personal injury litigation. The conventional discount rate of 4–5% was restored. As a result,

6 [1995] 3 HKC 732 at 749G.
7 [1996] 2 HKC 565.

HeinOnline -- 4 Int'l J. Evidence & Proof 196 2000

the level of award for loss of future earnings in *Chan Pui Ki*'s case was substantially reduced to:

HK$108,000 (multiplicand)	×	15 (multiplier)	=	HK$1,620,000.

The difference between the Court of First Instance's award and the Court of Appeal's award for loss of future earnings was around $2 million. Of this difference, more than $1.8 million was due to the reduction of the multiplier from 30 to 15. The Court of Appeal took the view that for many years, the conventional method of assessing an appropriate lump sum to compensate for loss of future earnings had been to use the multiplier/multiplicand approach. Crude though the method might be, it was nevertheless a realistic acknowledgement of the inherent limitations of the whole exercise. It was based upon the applied wisdom of the courts over many years. Litton VP said:[8]

> In the course of the hearing we were told by counsel that recently practitioners have been at a loss as to the right approach in cases involving future loss of earnings and have increasingly relied on 'experts' for assistance in advancing their respective cases. This is a trend which must stop, for it proceeds upon a fundamental misconception. Experts, be they economists, accountants or other professional persons, can of course testify in a court of law as to past events, and their views and opinions can sometimes be helpful in assisting the court in interpreting data ... The object of such evidence–the *only* legitimate object–was to test the validity of the basic *Cookson v Knowles* assumption in the Hong Kong context. If necessary both facts and opinions on such matters could have been challenged; these were therefore justificiable issues. But the opinion evidence in the court below was allowed to stray far beyond proper realms. For example, the judge said ... '[The expert] was of the view that the period from 1962 to 1995 is probably fairly representative of the economic conditions that one might expect to see in 20, 30 or 40 years' time'. This, with respect to the judge, was of no evidential weight in a court of law and ought never to have been entertained ... [The expert] who testified before the judge was an economist. He was no prophet.

8 *Ibid.* at 591–592.

HeinOnline -- 4 Int'l J. Evidence & Proof 197 2000

The approach adopted by the Hong Kong courts after the ruling of the Court of Appeal in *Chan Pui Ki*

One may have strong doubts about the fairness of using conventional multipliers in some situations. The Court of Appeal's ruling in *Chan Pui Ki* demonstrated that after the abandonment of actuarial evidence, the choice of multiplier seems to have become a mere guessing exercise. Litton VP:[9]

> ... Secondly, the multiplier. At the date of the judgment in October 1995 the plaintiff was 16½ years old and, according to the judge, would not have started working until 18 or 20. The award would, in effect, compensate the plaintiff for the loss of the income she might have earned from about mid-1998 (when she was about 19) to mid-2039 (when she would be about 60). In these circumstances an appropriate multiplier for the judge to have selected would have been 15. This multiplier reflects the uncertainties surrounding a plaintiff who, at the date of the trial court's judgment, was only 16½ years old and not yet in employment.

The Court of Appeal did not explain why the multiplier of 15 should be selected to 'reflect the uncertainties surrounding a plaintiff'. Also, it did not provide any reasons explaining why the multiplier of 15 represented the figure to be used to discount the future pecuniary values into a present lump sum, shaped by inflation rates, mortality patterns, investment returns, taxation and other relevant factors. It is sad to note that under the current legal system in Hong Kong, a multiplier can simply be picked, arbitrarily, without any reference to any evidence. It is anticipated that the victim, Miss Chan Pui Ki, will suffer enormous financial hardship in the not too distant future.

However, the Court of Appeal decision is still currently binding in the Hong Kong Court of First Instance. For example, Mr Justice Cheung of the Court of First Instance in *Dall* v *Choy Ying Wai* commented:[10]

> I tend to agree that the multipliers for young persons or persons of young age have been over-discounted but as the law now stands, the conventional multiplier must be applied in the assessment. In the light of the Court of Appeal decision, *change in law can only be effectively made by way of legislative reform* and not by

9 *Ibid.* at 595.
10 [1997] 2 HKC 588E.

HeinOnline -- 4 Int'l J. Evidence & Proof 198 2000

> changes in individual cases. To use the actuarial evidence to cross-check the conventional multiplier will not serve any useful purpose because even if substantial discrepancy is shown, it is the conventional multiplier and conventional discount that one must apply. (emphasis added)

The advent of using actuarial science in English courts and in other jurisdictions

In England, the Ogden tables assist in the calculation of damages for personal injury, by multiplying an annual sum, which takes into account factors such as cost of care and loss of earnings, by the number of years over which the damages are to be awarded. They provide an aid for those assessing the lump sum appropriate as compensation, for a continuing future pecuniary loss or consequential expense in personal injury and fatal accident cases. The first edition, named *Actuarial Tables with Explanatory Notes for Use in Personal Injury and Fatal Accident Cases*, prepared by the British Actuary's Department, was published in 1984. They are generally known as the 'Ogden Tables', after Sir Michael Ogden QC, who was responsible for their publication and was also the chairperson of the joint working party of actuaries and lawyers responsible for victim compensation. The Ogden Tables are now in their third edition.[11] Initially the Ogden Tables had no legal authority. However, the working party responsible for their production strongly encouraged the legal profession and the judiciary to use the tables. Although they have been widely used by judges at first instance since 1984, they have only recently received formal recognition. Under the Civil Evidence Act 1995, the actuarial tables (together with explanatory notes) for use in personal injury and fatal accident cases, issued from time to time by the Government Actuary's Department, are admissible in evidence for the purpose of assessing, in an action for personal injury, the sum to be awarded as general damages for future pecuniary loss. In July 1998, the House of Lords made a revolutionary decision in *Wells* v *Wells*. It approved actuarial evidence as the *primary* method of assessing future pecuniary loss, rather than a mere check. The Ogden Tables should be regarded as a starting point for selection of the appropriate multipliers in England. Lord Lloyd of Berwick[12] stated:

> I do not suggest that the judge should be a slave to the [Ogden Tables]. There may well be special factors in particular cases. But the tables should now be regarded as the starting point, rather than a check. A judge should be slow to depart from the relevant actuarial multiplier on impressionistic grounds, by reference to

11 *1998 Facts and Figures: Tables for the Calculation of Damages* (Sweet & Maxwell Ltd: London, 1998).
12 [1998] 3 WLR 329 at 347D.

HeinOnline -- 4 Int'l J. Evidence & Proof 199 2000

> 'a spread of multipliers in comparable cases' especially when the multipliers were fixed before actuarial tables were widely used.

The widespread use of actuarial evidence in other jurisdictions should also be noted. Actuarial evidence has long been in use in Australia.[13] In the United States of America, it has been established in a number of cases that standard mortality and annuity tables are admissible to show the plaintiff's probable life expectancy and the cost of an annuity which will compensate him for his loss.[14] The Canadian courts have affirmed the use of actuarial evidence in assessing personal injury damages in a number of landmark cases.[15] In Scotland, the courts held that the Ogden multiplier should be applied as a starting point for the assessment of future loss of earnings, not just cost of future care. The court decided that the ruling of the English House of Lords in *Wells* v *Wells* disclosed nothing which was particular to English law, and it ought to be followed in Scotland.[16]

Is there a need for reform in Hong Kong?

Litton VP of the Hong Kong Court of Appeal (as he then was) said that economists and actuaries were no prophets.[17] Of course they are no prophets. However, prophecy and actuarial science are two totally different matters. His refusal to admit and consider actuarial evidence was based on a fundamental misconception of the nature of actuarial science. It matters not that only *one*

13 Early examples of actuarial evidence given at trials can be found in *Smith* v *Mayor of Emerald Hill* (1881) 7 VLR (L) 431 (FC) and *Fleming* v *Commissioner for Railways* (1886) 2 WN (NSW) 56 (FC). A number of more recent examples are able to illustrate the common use and admission of actuarial evidence in Australian courts and tribunal: *Jane Carolyn Murfet* v *AAPC Australia Pty Ltd* Tasmanian Supreme Court Decisions, No 152/1997, unreported (Cox CJ said that 'the absence of any actuarial evidence makes the task of assessing the present value of an anticipated lump sum payment payable on retirement at age 60 and discounted for contingencies extremely difficult'); *Dawes* v *FHD Air Conditioning* v *Cox Construction* [1998] 3751 SADC. (In assessing the future economic loss flowing from the plaintiff's loss of capacity to work, Judge Lowrie of the District Court of South Australia said, 'This is a valid head of claim, but must be the subject of specialised and actuarial evidence.')

14 *Southern R Co* v *Stallings* 268 Ala 463, 107 So 2d 873; *Sullivan* v *Price* (Fla) 386 So 2d 241; *Mitchell* v *Arrowhead Freight Lines, Ltd* 117 Utah 224, 214 P2d 620; *Exxcon Corp* v *Fulgham* 224 Va 235, 294 SE2d 894. The court can also consider actuarial evidence in determining the appropriate discount rate: *Brown & Root, Inc* v *De Sautell* (Tex Civ App Houston (1st Dist)) 554 SW 2d 764.

15 *Dobbin* v *Alexander Enterprises Ltd* (1987) 63 Nfld & P E I R 1 at 12 (Nfld CA); *Andrews* v *Grand & Toy Alberta Ltd* (1978) 83 DLR (3d) 452 at 458 (Supreme Court of Canada); *Lewis* v *Todd* (1980) 14 CCLT 294 at 308–309 (Supreme Court of Canada) (Dickson J averred: 'The award of damages is not simply an exercise in mathematics which a judge indulges in, leading to a "correct" global figure. The evidence of actuaries and economists is of value in arriving at a fair and just result ... If the courts are to apply basic principles of the law of damages and seek to achieve a reasonable approximation to pecuniary *restitutio in intergrum* expert assistance is vital.')

16 *Logan* v *Strathclyde Fire Board* [1999] Rep LR 97; *McManus' Executrix* v *Babcock Energy Ltd* [1999] SC 569.

17 [1996] 2 HKC 565 at 592.

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individual is to receive the amount of the assessment, or that he may die the next day, or for that matter live to be a centenarian. So far as that individual is concerned, at the date of assessment, he is awarded fair compensation in the sense that *if* there had been a very large number of similar individuals of the same age all receiving the same amount, then overall the amounts would have equated to the stated payments, allowing for the operation in due time of compound interest and mortality. The memorandum prepared for the United Kingdom Law Commission by a Working Party of the Institute and Faculty of Actuaries[18] explained the issue clearly:

> Nor are the theories of probability and present value invalidated by the situation—very common in practice—that statistics for an identical group of lives do not exist. In practice it is necessary, more often than not, to proceed from the known to the unknown, to the determination of probabilities suitable to a *particular* risk, using material that is the best available to do the job. The whole of the actuary's training and experience is devoted to bridging this gap—to the choice of the most suitable statistics and, above all, to their application and adjustment to the circumstances of a particular situation, as they are seen to be at a particular moment of time. His opinion of the assessment in a particular case is therefore that of a professional expert skilled in this very art. Moreover, to discard his opinion on the grounds that precisely relevant statistics are not available would be to deny the usefulness of a technique that lies at the root of innumerable commercial transactions that are taking place daily.
>
> The difficulties which judges and lawyers generally have experienced in interpreting actuarial evidence and appreciating the assistance which it can give no doubt largely explain the reluctance of those advising litigants to instruct an actuary.

The implications of *Wells* v *Wells* in Hong Kong have not yet been seen. As discussed, the Hong Kong courts have resumed using the conventional approach to determine multipliers, after the Hong Kong Court of Appeal's decision in *Chan Pui Ki* in 1996.

On the other hand, it would not be practical for the Hong Kong courts to simply adopt the Ogden Tables, as they were constructed in the light of circumstances in the United Kingdom, not of Hong Kong. Investments in ILGS (British Index-linked Government Securities) are also not available in Hong

18 David Kemp QC, *Damages for Personal Injury and Death*, 7th edn (Sweet & Maxwell: London, 1999) 240.

HeinOnline -- 4 Int'l J. Evidence & Proof 201 2000

Kong. Nevertheless, if the Hong Kong courts continue to use the conventional approach, the multipliers would not be linked to the mortality experience and the local economic environment. The economic landscape and mortality patterns in Hong Kong have been changing rapidly during the last 30 years. It is practically impossible to find any truly comparable cases, having similar factors in respect of age and sex of the victims, mortality experience of the general population, inflation, taxation and investment return rates. Therefore, the fairness of conventional multipliers, which are based on analogy, is questionable. The Hong Kong courts have been slow to move to a standard method of assessing future loss by means of actuarial annuity tables. The need for reform is pressing. Interdisciplinary research between lawyers and actuarial experts must catch on. The actuary undertaking the valuation of pecuniary loss will require the following principal elements as the foundation for the construction of the actuarial annuity tables: (a) mortality and contingencies; (b) earnings progression and inflation; (c) investment returns and (d) taxation. In Hong Kong, these statistical data and information can be collected from various sources, *inter alia*:

- *Hong Kong Life Tables*, Demographic Statistics Section, Census and Statistics Department, Hong Kong.
- *Half-yearly Report of Wage Statistics* and *Monthly Report on the Consumer Price Index*, Census and Statistics Department, Hong Kong Government.
- *Measurement of Investment Performance Survey for Hong Kong Retirement Schemes: Annual Report*, Wyatt (Hong Kong) Company Ltd.
- *Handbook of Hong Kong Tax Statutes*, Hong Kong: Butterworths.

Using the methodology analogous to the formulation of the Ogden Tables, three sets of tables can be constructed for Hong Kong. They include: (a) multipliers for pecuniary loss for life; (b) multipliers for loss of earnings to pension age; and (c) multipliers for loss of pension commencing from the retirement age. Each set of tables should be comprised of different tables of multipliers, computed under different combinations of factors such as gender (male or female), mortality basis (observed or projected) and retirement age.

Conclusion

J. H. Prevett, an actuary, articulately made the following comments,[19] which are pertinent to understanding the division of roles between judge and actuary:

19 'Actuarial Assessment of Damages: The Thalidomide Case—I' (1972) 35 MLR 140 at 141.

HeinOnline -- 4 Int'l J. Evidence & Proof 202 2000

> The court is not able to do the best it can if it fails to apply tools which are available to reduce a complex problem to simpler and more manageable proportions. The use of such tools does not in any way remove the need for the application of judgment and experience but it allows these qualities to operate within more rational and logical limits.

Unfortunately, the law of personal injury compensation in Hong Kong has fallen behind in many areas. Actuarial evidence has historically not always been popular with the courts, in part because of the perceived inability of actuaries to explain technical aspects of their work effectively in written and oral testimony. On the other hand, Robin De Wilde QC commented,[20] after the English Court of Appeal's judgment in *Wells* v *Wells*: 'Rightly was it said that most barristers and even more judges do not understand money.' Interdisciplinary scholarship and research are only just catching on. The reluctance to hear expert evidence is symptomatic of the Anglophile outlook. Further, the exclusive examination of cases is a perpetuation of the self-referential characteristic of English law that has been followed closely by the Hong Kong courts in the past. The advent of admitting actuarial evidence in the courts of England and other jurisdictions seems to have generated suspicion, or even fear, in the Hong Kong Court of Appeal. Those affected by suspicion and fear, as we all know, always react by banning what they fear and end up becoming segregated from the contemporary reality. This attitude has been abundantly shown in the Hong Kong Court of Appeal in *Chan Pui Ki*. The court banned the use of actuarial evidence in assessing future loss of earnings and stated that 'this is a trend which must stop'.[21] However, we are all living through a period of dynamic change. England, the United States of America and Canada are ahead at the moment in respect of personal injury compensation. Australia is next, then Scotland, with Hong Kong surprisingly lagging behind. But it should not be long before everyone catches up, if we are prepared to respond and not be reactionary when it comes to coping with the challenge of change. As Professor Ison stated:[22]

> How any society responds to the need of those who are disabled from earning, and the dependants of those who are prematurely killed is surely one of the moral indicators of its civilization.

20 Above n. 11 at xi.
21 [1996] 2 HKC 565 at 591G.
22 T. Ison, 'Human Disability and Personal Income' in L. Klar (ed.) *Studies in Canadian Tort Law* (Butterworths: Toronto, 1977).

HeinOnline -- 4 Int'l J. Evidence & Proof 203 2000