ESTIMATING LIFE EXPECTANCY AND EARNING CAPACITY: OBSERVATIONS ON THE SUPREME COURT'S DETERMINATION OF COMPENSATORY DAMAGES FOR DEATH AND INJURY

Romeo C. Buenaflor Jr.[*]

INTRODUCTION

How much is a man's life worth? To such a philosophical question, few men have dared voice an answer. Life, we are taught, is priceless, and to even begin to contemplate a pecuniary measure of its value seems most obscene. But the reality and idea of law is such that it rarely heeds, recognizes, or indulges faint sensitivities. After all, law, like nature, abhors a vacuum. It is in this contextual milieu that the law on damages in cases of death and injury arose. Disagreeable though the thought was, it nevertheless was necessary to find a way to recompense the deceased or injured person's successors-in-interest. Today the body of law known as the law on damages is still constantly growing. The aim of this paper is to illustrate, examine, and critique an aspect of the law on damages in the Philippines. The purpose of this paper is to examine the law on compensatory damages in cases of death or injury, particularly as computed on the basis of life expectancy and earning capacity.

[*]Fourth Year, LL.B., University of the Philippines, College of Law.

DAMAGES IN GENERAL

Damages may be defined as the pecuniary compensation, recompense, or satisfaction for an injury sustained, or as otherwise expressed, the pecuniary consequences which the law imposes for the breach of some duty or the violation of some right.[1] In the Philippines, the old Civil Code embodied only a few general principles on the measure of damages. The New Civil Code, however, devotes a whole title on "Damages." These provisions embody several principles of American law, as their courts have a well-developed system of rules and principles on the adjudication of damages.[2]

The Civil Code classifies damages into 6 kinds.[3] They are actual or compensatory, moral, nominal, temperate or moderate, liquidated, or exemplary or corrective. As stated, for our purposes, let us begin by restricting our study to actual or compensatory damages.

COMPENSATORY DAMAGES

The law on actual or compensatory damages is embodied mainly in Chapter 2, Title XVIII, Book IV of the Civil Code. It is provided that:

> Except as provided by law or by stipulation, one is entitled to an adequate compensation only for such pecuniary loss suffered by him as he has duly proved. Such compensation is referred to as actual or compensatory damages.[4]

Actual or compensatory damages are those awarded in satisfaction of, or in recompense for, loss or injury sustained. They

---

[1]5 TOLENTINO, CIVIL CODE OF THE PHILIPPINES 632 (1992) [hereinafter TOLENTINO].

[2]5 TOLENTINO 631 (1992).

[3]REP. ACT NO. 386 (1949), [hereinafter CIVIL CODE] art. 2197.

[4]CIVIL CODE, art. 2199.

simply make good or replace the loss caused by the wrong. They proceed from a sense of natural justice and are designed to repair the wrong that has been done, to compensate for the injury inflicted, and not to impose a penalty. They are construed to include all damages that the plaintiff may show he has suffered in respect to his property, business, trade, profession, or occupation; and no other damages whatsoever.[5]

There are two distinct kinds of compensatory damages; one is the loss of what a person already has, which is known as *daño emergente*, and the other is the failure to receive a benefit which would have pertained to him, which is known as *lucro cesante*.[6] Our main concern is with the second benefit. The law states:

> Indemnification for damages shall comprehend not only the value of the loss suffered, but also that of the profits which the obligee failed to obtain.[7]

Translated to the situation of compensatory damages in cases of death or injury, the second half of this provision would mean the reparation for loss or impairment of earning capacity over the lifetime of the deceased or injured person. This would be approximated by the benefits or profits he would have earned if not for the wrongful death or injury, had he survived, or had the damage not occurred. These "profits" are usually computed on the basis of earning capacity of the deceased over his remaining lifetime.

EARNING CAPACITY

The law provides that damages may be recovered:

> For loss or impairment of earning capacity in cases of temporary or permanent personal injury [8]

---

[5]TOLENTINO, at 633, citing Algarra v. Sandejas, 27 Phil 284.
[6]TOLENTINO, at 636, citing 8 Manresa 100.
[7]CIVIL CODE, art. 2200.

"Earning capacity," in American law, has meant that which, by virtue of the training, the experience, and the business acumen possessed, an individual is capable of earning.[9] A distinction is made between loss of earnings and impairment of earning capacity, in that the former relates to the loss of wages which might have been earned had plaintiff not been injured, while the latter relates to the diminution of earning capacity.[10] A recovery for future loss of earning capacity must be limited to such losses as is reasonably certain to occur, or is reasonably probable, and proximately results from the injury, but the injury need not have resulted in an immediate, or actual diminution of earnings, or income, where the person injured was performing services without compensation, or was not receiving wages as such.[11]

Impairment of earning capacity in the future refers to the loss of pecuniary benefits, and includes the probable loss of wages and earnings in the future resulting from the plaintiff's injuries.[12] Loss of earning capacity may be partial or total, or it may be temporary or permanent. The loss of pecuniary benefits is temporary when earning capacity can be restored at some future time; otherwise, it is permanent. In this manner, injury contemplates death.

DETERMINING FACTORS OF EARNING CAPACITY

The Supreme Court has considered two factors in measuring the amount recoverable for the loss or impairment of earning capacity:

> (1) the number of years on the basis of which the damages shall be computed, and

---

[8]CIVIL CODE, art 2205.

[9]Texas Electric Ry v. Worthy, 250 S.W. 710,712.

[10]25 C.J.S. 725.

[11]*Ibid.*, at 726.

[12]25 C.J.S. 951, citing Evans v. Farmers Elevator Co., 147 S.W. 2d 593 and Honeycutt v. Wabash R. Co., 313 S.W. 2d 214.

> (2) the rate at which the losses sustained by the plaintiffs should be fixed.[13]

These two factors, however, can be more systematically regrouped into three elements. These are:

> (1) longevity or life expectancy, which measures the period over which the injured would have earned;
>
> (2) capability, which indicates the amount he is capable of earning per unit of time; and
>
> (3) propensity, which reveals the regularity of earning over a period of time.

LONGEVITY OR LIFE EXPECTANCY

The Supreme Court has identified some of the factors affecting life expectancy. Citing the *Corpus Juris Secundum,* the factors identified are the state of health of the injured, his habits, manner of life, social conditions, financial conditions and educational attainment, among others.

Consider the case of *Davila v. C.A.*,[14] the Court said:

> However, although the deceased was relatively in good health, his medical history shows that he had complained of and been treated for such ailments as backaches, chest pains and occasional feelings of tiredness (sic). It is reasonable to make an allowance for these circumstances and consider, for purposes of this case a reduction of his life expectancy to 25 years [from 33-1/3].[15]

---

[13]Villa Rey Transit, Inc. v. CA, 31 SCRA 511 (1970).
[14]49 SCRA 497 (1973).
[15]*Ibid.*, at 504.

In contrast, the Court, in *Monzon v. I.A.C.*,[16] declared:

> It is worth noting that Arturo Monzon, at the time of his death, was 40 years old and in good health. xxx. He had a flourishing legal practice, specializing in taxation and was retained by a number of large companies.[17]

The Court in the latter case did not reduce the computed life expectancy; neither was it increased.

To zero in on the behavior of the Court with regard to these factors, the case of *People v. Balanag*[18] is illuminating. The Court declared:

> In computing the loss of the earning capacity of the victim, several factors are considered besides computation of annual income times life expectancy. Allowances are made for circumstances which could reduce the computed life expectancy of the victim.[19]

Clearly, only proof to reduce is entertained by the Court. Even normal conditions like backaches, chest pains, among others, are enough to merit a considerable reduction in life expectancy. Life tables or any similar statistics are not meant to be interpreted that way. Statistics of these sorts are measures of central tendency, or simply put, they are more or less at the center. Specifically, the life expectancy tables have taken into considerations not only one factor, not only some, but all factors possible. Theoretically, if people do not catch diseases or meet an accident, they are immortal. These diseases and accidents, both inherent in their genes, or the so-called genotypic factors, or from outside environment, or phenotypic factors,[20] makes the mortality tables. Apparently, there is a misunderstanding in the appreciation of

---

[16]169 SCRA 760 (1989).
[17]*Ibid.*, at 766.
[18]236 SCRA 474 (1994).
[19]*Ibid.*, at 486.
[20]*See* ORDY AND BRIZEE, NEUROBIOLOGY OF AGING.

these tables by the Court. True, even normal conditions affect a person's life expectancy. Not all of these conditions, however, converge in one person at the same time, as is the case most of the time. So the slight under-assessment of one condition may be offset by an over-assessment of another condition, on the average. It is only when these conditions become severe that a reasonable adjustment is in order.

By factors affecting life expectancy, they are not meant to be negative factors only. Take, for example, financial condition of life. Poor people find it difficult to avail themselves of the best medical services or food, and so they have greater chances of a shortened life expectancy; in the same way that rich people have the best of these services or nutrition, resulting in an improved health and life expectancy. A bad condition is as bad in pulling down the life expectancy, as the good condition is good in pulling it up. If it be mere conjecture to say good conditions increase life expectancy, it is also mere conjecture that to say that when life expectancy is shortened by a disease it is lower than the computed value. In fact, all these factors and computation of earning capacity are necessarily, by their very nature, conjectures or speculations. But the law allows these speculations; and in doing so, it did not say that only those speculations favorable to a lessening should be considered. It frowns upon enrichment with equal vigor on either party. The scale held by the lady of justice stabilizes only when less is more and more is less, and breaks when more is more and less is less.

CAPABILITY

That a person who is actually earning is capable to earn, is the most common factor used in assessing earning capacity.[21] It is not valid, however, that if a person who is not actually earning is not capable of earning. The only time when the latter statement

[21] *See* cases, *supra*.

becomes valid is holding earnings as the equivalent of capability to earn.[22] Take, for example, a housewife or homemaker. Though she is not actually earning, she can earn money if she wants to, especially if she has a skill of commercial value. But a child?

In the *La Mallorca* case[23] discussed heretofore, there was no component of damages for earning capacity for the death of a 4-1/2 year old child. The 18-year-old lass in the *BLTB* case,[24] though not working was held to have earning capacity. The difference lies, according to the Court, in the degree of conjectures or speculations employed. Coupled with the fact that being a child, the life expectancy value is still high.

It was already argued that speculations are necessary for this kind of questions. But can a high degree of speculations be supported? The answer is yes. The first assumption to make is that the child survives at least up to the age when he can already work, the age reasonably set at 21 - the age of majority. what is his chance of survival? This can be computed from the mortality table: $s = L_{21} / L_{\text{age at death}}$. The further the age at death from 21 the smaller will be his probability. The life expectancy may now be computed at age 21. Multiplying the two factors will yield the work-life expectancy.

The next question is: what is the measure of his capability to earn? In American jurisdiction, the income of the parents is held as the basis.[25] The justification hangs on the saying "the fruit is the same as the tree that bears it. The parents have great influence over their child's education and upbringing. Compare the parents to the fine soothing sand or rough cutting gravel which the child shall have walked on. It is not uncommon for children to follow the

---

[22]Elementary logic will tell us that: if (P then Q is true) and (not P then not Q is also true), then P = Q (equal sign read as 'is equivalent to').

[23]*Supra.*

[24]*Supra.*

[25]*See* C. J. S. 717, *et. seq.*

footsteps of their parents. The net income of the parents divided by 2 (there are two parents) is a reasonable estimate of the child's capability to earn.

Another factor that may be considered is the minimum wage set by law or the proper agencies. It can be fairly presumed that those companies or establishments offering a wage lower than that set by law are considered a serious violation of the law. Hence, in compliance with the law, the minimum wage may be used in computing for earning capacity. Add to this the likelihood of the child to earn more based on his family background.

Why net income? The Court, starting in *Villa Rey Transit,*[26] has pointed out the deduction for the necessary living expenses of the injured. There is no problem with that. The problem lies with how it is determined. At present it is based purely on personal judgment of the court. And almost always this is understated. Empirically, it can be asserted that the component of living expenses is inversely proportional to earning capacity. The prices of food remains constant regardless of the amount one is capable of earning. Those who have small capacity to earn must naturally spend a greater part of their income on food and other necessities, than those who have high earnings.

PROPENSITY

The propensity of one to work starts, on the average, at the age of majority, goes up as his age advances especially to meet new responsibilities. It starts declining when these responsibilities disappear, and reduced practically to zero at old age. The Court in *Quilaton* also considered the nature and seasonality of work and the manner of paying wages. Factors of propensity depends really on the facts and circumstances of each case. Theoretically, there should also be work-expectancy tables, but underground

---

[26] *Supra.*

economies[27] are now increasingly becoming more significant, that the tables obtained from Government agencies may no longer be reflective of the true work-parameters.

MORE OBSERVATIONS ON THE STATE OF PHILIPPINE LAW

With respect to the award of compensatory damages for the loss or impairment of earning capacity, the Supreme Court has not been uniform in its decisions. Some of the cases were decided with no express award of compensatory damages, either because it was not considered at all, or it had been conveniently lumped into the basic indemnity for death.[28]In the rest of the cases where they awarded compensatory damages, life expectancy was the first factor taken into consideration. Here, it should be noted that in the determination of the life expectancy of a person, the Supreme Court inconsistently applied its personal judgment or it referred to some table or formulae.

To wit, an outline of the decisions of the Court would be:

I. No express award

A. not considered
B. lumped into basic indemnity

II. Award based on life expectancy

A. personal discretion of the Court

B. mathematical basis

1. based on the formula (2 / 3) x (80 - age at death)[29]
2. based on actuarial mortality/life table

a. American Experience Table
b. CSO Tables

---

[27]Economy of those whose income are not reported to the BIR.
[28]It is currently set at 50,000 pesos by current jurisprudence.
[29]Hereinafter referred to as the S.C. FORMULA.

One case where the award of compensatory damages for the loss or impairment of earning capacity was not considered at all is the one of *La Mallorca v. CA.*[30] The plaintiffs had sought to recover from the defendant an aggregate amount of 16,000 pesos to cover moral damages and actual damages sustained as a result of the death of the plaintiffs' child. The trial court rendered judgment sentencing the defendant to pay 3,000 pesos for the death of the child, and 400 pesos as compensatory damages representing burial expenses and costs. On appeal, the Court of Appeals increased the award to 6,000 pesos, however, the Supreme Court reduced said award to 3,000 pesos.

In another case,[31] the award for loss of earning capacity was held as part of the indemnity for death due to an accident. The trial court and the Court of Appeals sentenced defendant to pay plaintiffs 8,000 pesos for the loss of earning capacity. Defending the speculative nature of the award of compensatory damages for loss of earning capacity, the Court missed the point when it chided the defendants:

> It ill-behooves petitioners to complain about the 'speculative' character of the amount of 8,000 pesos x x x. The victim of their misdeed was at the threshold of youth x x x . If anybody could complain then, it is her parents.

It must be noted that in the above two cases, the ages of the injured parties were believed to be the main factors why the court did not use life expectancy as a measure of compensation. This behavior seems to imply that life expectancy is a secondary factor, which is considered only after determining whether the person is capable of working or not.

This observation is bolstered by the behavior of the Supreme Court in the second case. Although the Court actually recognized

---

[30]17 SCRA 739 (1966).

[31]Batangas Laguna Tayabas Bus Company v. CA, 64 SCRA 427 (1975).

the earning capacity of the child, it did not use life expectancy as a factor in computing compensatory damages. What was actually awarded was only part of the minimum death indemnity provided for by law. Although the two have common factors, they are actually different components of compensatory damages. The law recognizes this by placing them in separate provisions.[32] If the Court had considered loss of earning capacity as a separate component, it was unsure whether that could be justified considering the injured, still young, was as of that time, not working yet.

The leading case recognizing the use of life expectancy in the determination of compensatory damages for the loss or impairment of earning capacity is *Alcantara v. Surro and Manila Electric Company*.[33] This case was decided way back in 1953. The Supreme Court, relying on American precedent, held:

> [A]nd so it has been said that there can be no exact or uniform rule for measuring the value of a human life and the measure of damages cannot be arrived at by precise mathematical calculation, but the amount recoverable depends on the particular facts and circumstances of each case. The life expectancy [however] is an important factor x x x [34]

The Court, however, failed to espouse any method for computing life expectancy. Rather, it relied solely on the reasonable personal judgment of the lower court. Sweepingly, in this respect, the latter held that four years life expectancy was sufficient. Unfortunately, neither party appealed this part of the judgment, and thus the Court was mercifully allowed to avoid ruling squarely on the problem.

It must be noted that as a factor in determining the amount of compensatory damages, American jurisprudence has not

---

[32] CIVIL CODE, art. 2205 and 2206.
[33] 93 Phil. 472.
[34] 25 C.J.S. 1241.

consistently held that the only basis is the life expectancy of the injured, at least with regard to some particular component of damages, like support. This is in contrast to the Philippines situation, where the Court, in *Philippine Airlines, Inc. v. CA*,[35] ruling on the lone issue of whose life expectancy to consider, enunciated that it is the life expectancy of the injured that is controlling. It based its conclusion on two grounds, both actually begging the question. The first ground relied upon was the express provision[36] of the Civil Code mandating that it was the "loss of the earning capacity of the deceased," which formed part of the indemnity of the heirs. The Court could have explained further. It could have differentiated between the loss of earning capacity of the injured which necessarily hinges on his own lifetime, on one hand, and loss of support, loss of society, and loss of companionship of those who would receive the support, or those who would have the chance of companionship with the injured, on the other. In computing such damages, which are also part of those recoverable as compensatory damages, the lifetimes of other persons would have to be taken into account. It was precisely in this context that the American Courts laid down the doctrine "life expectancy of the injured or the beneficiary, whichever is shorter."[37] The second ground alluded to was the fact that the previous cases used the life expectancy of the injured. The case of *Davila v. PAL*[38] was cited. However, neither the *Davila* case nor other subsequent cases were able to elucidate the rationale for such rule. It was in fact this lack of an adequate explanation which the respondent PAL brought the matter to the attention of the Supreme Court.

---

[35]185 SCRA 110 (1990).

[36]CIVIL CODE, art. 2206.

[37]*See* 25 C. J. S. 646 on Compensatory Damages, *et. seq.*

[38]49 SCRA 497 (1973).

As regards a specific formula for computing life expectancy, in *Villa Rey Transit, Inc. v. C.A.*,[39] the Supreme Court had the first occasion to adopt a mathematical formula. Said the Court:

> The only issue raised in this appeal is the amount of damages recoverable by private respondents herein.. the determination of such amount depends, mainly upon two (2) factors, namely: (1) the number of years on the basis of which the damages shall be computed and (2) the rate at which the losses sustained by said respondents should be fixed.

Furthermore:

> The first factor was based by the trial court - the view of which was concurred in by the Court of Appeals - upon the life expectancy of Policronio Quintos, Jr., which was placed at 33-1/3 years - he being over 29 years of age (or around 30 years) for purposes of computation at the time of his demise - by applying the formula (2/3 x [80-30] = life expectancy) adopted in the American Expectancy Table of Mortality or the actuarial of Combined Experience Table of Mortality.[40]

While most cases follow the *Villa Rey Transit* doctrine, some cases insist on raw mortality tables in the calculation of life

---

[39]*Supra.*

[40]31 SCRA 515 (1970).

> The case cited is not, however, controlling in the one at bar. In the Alcantara case, *none* of the parties had questioned the propriety of the four-year basis adopted by the trial court in making its award of damages. Both parties appealed, but only as regards the *amount* thereof. The plaintiffs assailed the non-inclusion, in its computation, of the bonus that the corporation, which was the victim's employer, had awarded to deserving officers and employees, based upon the profits earned less than two (2) months before the accident that resulted in his death. The defendants, in turn, objected to the sum awarded for the fourth year, which was treble that of the previous years, based upon increases given, in that fourth year, to *other* employees of the same corporation. [Neither objections were] sustained by the courts. Accordingly, the same had not thereby laid down any rule on the length of time to be used in the computation of damages. xxx
>
> Thus life expectancy is, not only relevant, but, also, an *important* element in fixing the amount recoverable herein. xxx.

expectancy. In *Vda. de Abeto v. Philippine Airlines, Inc.*[41] and *Rodriguez-Luna v. Intermediate Appellate Court*[42] the Supreme Court did not disturb the trial court's finding of life expectancy through the use of the American Experience Table of Mortality.

In a fairly recent case, *People v. Quilaton*,[43] the Supreme Court, in a progressive and inspired moment, attempted to modernize the antediluvian *Villa Rey* doctrine. Declared the Court:

> The Court notes that the formula used in the *Villa Rey Transit* was based on a table derived from actuarial experience prior to 1970 when the decision in *Villa Rey Transit* was promulgated. Actuarial experience subsequent to 1970 has, however, changed and indicates a longer life expectancy in the Philippines due to conditions including, among other things, advances in medical science, improved nutrition and food supply, diet consciousness and health maintenance. The 1970 mortality table was updated in 1980 to reflect the changes of conditions (The updated mortality table is known in the insurance industry as the 1980 Commissioner's Standard Ordinary mortality Table [1980 CSO]).[44]

---

[41]115 SCRA 489 (1982).

[42]135 SCRA 242 (1985).

[43]205 SCRA 279 (1992).

[44]205 SCRA 289 (1992).

The Supreme Court here is rather misleading. It should be borne in mind that the American Experience Table of Mortality and the CSO Mortality Table, are two different Tables and each are independently updated by different actuarial societies using different information or data. It cannot be asserted that the 1980 CSO is an update of the American Experience Table; *See* also PAL v. C.A., *supra*, where the parties submitted a stipulation of fact where the different Tables, the Filipino Experience Table, the American Experience Table, the standard Industrial Table and the 1941 CSO Table, were presented for use of the Court. The Supreme Court also tried to show the mathematical formula of life expectancy: $\Sigma(Lx+1, Lx+2, \ldots, Lx+n) / Lx$, where $n = 100 - x$, x = age upon death, L = number of people in sample surviving after x number of years. This formula is, however not entirely correct. The 1980 CSO Table and most other tables have up to L_{99} only. Following the formula above the life expectancy of a person at age 0 would have a component $Lx+n = L_{0+100} = L_{100}$., when $n = 100-x=100-0$. The better formula is: $\Sigma(Lx+1 + Lx+2 + \ldots + Lx+n) / Lx$, where $n = 99 - x$, x = age upon death, L = number of people in sample surviving after x number of years. Actually, the significance of the index 100 is that it shows what the assumed age no person

Unfortunately, however, this ruling would not consistently find subsequent reaffirmation. Indeed, the initial reluctance and the continuing ambivalence of the Supreme Court in using life expectancy tables as a tool for computing loss of earning capacity is as much a subjective problem as it is an objective one. It can probably be traced to the fact that the subject matter of estimating earning capacity, lifetimes, and other related matters, is treated only in advanced courses in Statistics or Mathematics. This lack of confidence of the Court in applying statistical and mathematical techniques is most noticeable in its rulings.

Another factor, perhaps, contributing to the dearth of jurisprudence on statistical estimation can be attributed to practicing lawyers themselves. Courts rely on lawyers to provide the impetus for jurisprudential accretion. But perhaps largely due to the fact that few practicing lawyers have acquired the mathematical sophistication required to argue cases based on intricate mathematical theorems and proofs, this accumulation of knowledge has been slow in coming.

The vacillating attitude of the Court, of not being totally confident in using these tables, is also understandable in the light of lack or insufficient knowledge about the subject. Since our law on damages are of American origin, the Supreme Court has been apprehensive of its usage. It has in fact exhibited a marked difficulty in resorting to American Experience Tables. These, after all, have been used in solving some technical-legal questions peculiar to the United States. In the end, the Court has almost always consistently ruled that American jurisprudence is applicable only when there is a paucity or lack of local jurisprudence; and that even if there is lack of the latter, the

---

had ever reached. In actuarial convention, this is what is called the omega ω. the value then of $L\omega = 0$. But people who would not know this convention might be misled into looking for a non-zero value, so the reason for the correction of S.C. formula.

former is only persuasive, the final analysis should lie on the facts and circumstances of the case.[45] [46]

OVERVIEW OF MORTALITY TABLES

The problems involved in constructing a mortality table are highly technical. But to give an overview, here are the basic concepts involved. To start, the population studied may consist only of males, only of females, or a mixed population of both. With regards to a mixed population, the table constructed may also take into consideration sex differences in mortality rates by adjusting some information. These are called combined tables.

In constructing a mortality table the first step is to make a study whose object is a schedule showing the number of persons exposed to the risk of death at each age and the number of such persons who died at that age. The ratio of the number of deaths to the number exposed is the rate of mortality at age x; that is the probability that a person who has attained a certain age will die within a year. The next step is to choose a convenient arbitrary number, called the radix of the table, to represent the number of persons living at the lowest age in the investigation. By starting with this radix we can use the rates of mortality to build the l_x (representing an arbitrary number of persons attain the precise age x) and d_x (representing the arbitrary number, out of l_x persons attaining precise age x, who die before reaching age x+1) of the

---

[45]PAL v. CA, *supra*.

[46]One must note that this problem is not limited to this area of law. In taxation, insurance, and other commercial laws, there is a similar difficulty. All of these Tables have been based on the experience of either the general American population, the basic data coming from a U.S. official census, or on the experience of American life insurance policy-holders. Being constructed out of the data based on American population, these tables become subject of doubt as to whether the statistics obtained are applicable to a Philippine situation. These American-based tables are undoubtedly used by Philippine insurance companies. However, that the tables are applicable for insurance purposes is not a guaranty that they are applicable for other purposes.

mortality table using the formulas $l_{x+1} = l_x - d_x$ and d_x = radix * rate of mortality at age x, where $l_{\text{lowest age in the investigation}}$ = radix.[47]

To use the mortality table in obtaining expected life at age x, the formula is $(l_{x+1} + l_{x+2} + \ldots + l_{\text{highest age in the investigation}})/ l_x$.[48] Most Tables contain these values already.

AMERICAN EXPERIENCE TABLE

This is the basis of the now famous rigid S.C. formula, as used in the *Villa Rey* case. The American Experience Table was constructed at about 1860 and first published under its present name in 1868. Sheppard Homans, an actuary affiliated with the Mutual Life Insurance Company of New York and the author of the table, never gave full particulars as to how the table was constructed. He once stated publicly, however, that, although the experience of the Mutual Life Insurance Company of New York was the main basis for the table, the table was never intended to be an accurate interpretation of the experience of the Mutual Life. It seems reasonable to conclude that Mr. Homan's judgment played a large part in the construction of the table.[49]

Until very recently the American Experience Table was very widely used for premium and reserve calculations. It is still the basis upon which a large proportion of outstanding insurance in force was issued, and many laws and regulations refer to it. It is, therefore, of considerably more than academic interest.[50]

It is now apparent that the basis of the Philippine formula is not expressed in a mathematical formula, but a table of ages against the expected life values. There is no available literature for

---

[47]LARSON AND GAUMNITZ, INSURANCE 12 (1951).

[48]*Ibid.*, at 21.

[49]*Ibid.*, at 14.

The table starts at age 10 with a radix of 100,000 and ends with three deaths between ages 95 and 96.

[50]LARSON AND GAUMNITZ, *supra* note 34, at 14.

the Philippine formula, or that erroneously the formula is the 'table'. There is only one conclusion that can be drawn: since the basis of the table has not been revealed by the author, then simple linear regression was performed to derive the formula.[51] There is no assertion, however, as to who did it. Be that as it may, it will be considered later for comparison to other expectancy information.

CSO TABLES

The CSO Tables are also of American origin, based on American life insurance experience for a certain period. The observed rates of mortality were arbitrarily increased in order to provide reasonable safety margin necessary to the sound operation of the life insurance business.[52]

The latest of these tables recognized by the Insurance Commission and adopted by the Supreme Court[53] is the 1980 CSO Table. [54]

ACTUARIAL STUDIES IN THE PHILIPPINES

Actuarial studies had also been conducted in the Philippines, four of them cited in this paper.[55] The first was initiated in 1956 and ended in 1964 with a graduation of the rates of mortality of Standard Ordinary Medically Examined Business of the ultimate section.[56] At about the same time, Dr.

---

[51]A procedure in Statistics in deriving $Y = A X + B + \varepsilon$, where Y is the dependent variable and X the independent variable, A and B are unknown constant which are subjects of estimation, ε is the error function usually assumed to follow a normal distribution with mean equal to zero (0).

[52]LARSON AND GAUMNITZ, *supra*, at 16.

[53]People v. Quilaton, *supra*.

[54]*See* Male, 1980 CSO Mortality Table (1980).

[55]Another study conducted Salvador B. Salvosa is cited in PAL v. CA, *supra*.

[56] 2 IIAP JOURNAL 8 (4th Quarter 1985).

The project was initiated by Mr. Robert L. Bergstresser, FSA, then consulting actuary of the Insular Life Assurance Co., Ltd. The term Standard Ordinary Medically Examined Business is used to refer to the group of the Philippine population with current life insurance policies drawn out of their lives

Hizon and Mr. de Castro conducted a study using 1960 census figures, and published it in 1964.[57] The third, this time using both the 1960 and 1970 census data was carried out by Ms. Luisa Engracia. The latter was published in 1974.[58]

The fourth concluded study recognized by the Actuarial Society of the Philippines and the Insurance Commission, was done in 1973 until 1978.[59] The data comprise 1,884,174 policy-years of exposure observed from 1973 to 1978, contributed by 6 Philippine insurance companies.[60] The graduation process was then carried out, and the crude mortality rates, referred to as the Basic Table, were obtained. [61] The Basic Table was then

---

from insurance companies operating in the Philippines. The term of the ultimate section is used to refer to policies with at least 6 years in duration or effectivity.

[57]HIZON AND DE CASTRO, 1960 POPULATION MORTALITY FROM CENSUS FIGURES, cited in ENGRACIA.

[58]ENGRACIA, *Estimates of the Life Table Functions of the Philippines: 1970* 23 THE PHILIPPINE STATISTICIAN 53 (1974). (Engracia was the Senior Statistician, Population Research Unit, National Census and Statistics Office (now National Statistics Office).

[59] Mercado, *Philippine Inter-Company Mortality Tables,* presented on November 17, 1983 during the 24th Annual Convention of the Actuarial Society of the Philippines held at Insurance Institute for Asia and the Pacific in Alabang, Rizal, published in 2 IIAP Journal 8 (4th Quarter '85). The study was conducted by the Committee on Mortality of the Actuarial society of the Philippines chaired by the author himself with five others.

[60]*Ibid.*

"The count for a policy with a duration of effectivity, or exposure, of 6 years is 6 policy-years.

The proportion of the total exposure (by policy years) contributed by several companies are as follows:

Philippine American Life	51.79%
Insular Life	35.31%
National Life	4.18%
Sun Life	2.71%
Grepa Life	2.54%
Lincoln Philippines	2.47%"

[61] *Ibid.*

"Policies at least 6 years in duration (ultimate section) were grouped in quinquennial ages using attained ages of the insured. There were 977,855 policy-years of exposure and 5,064 deaths in the observation period.

adjusted or loaded using formulas similar to the ones used by the Society of Actuaries of America in loading the K-tables, to provide for a reasonable margin to take care of adverse fluctuation in mortality and for contingencies; or in other words to make the insurance business of companies economically viable.[62] The loaded table is now what is called as the Philippine Inter-Company Mortality Table or PIC.[63]

"Note that the observed death rate at age 12 is lower than that at age 7. Let me quote that part of the Report of the Special Committee of the Society of Actuaries regarding this matter. Writing about their experience in the U.S. the report stated, 'The pivotal values for the New Basic Table at ages 2, 7, 12 were adjusted because most modern tables show lower death rates at age 12 and at age 7. The Committee felt that the increase in the adjusted crude values at ages 7-12 is a fluctuation due to the limited data at those ages."

"All the crude rates from age group 7 to 77 were used in the graduation process. The death rate at the central age 2 was taken from the issues at ages 0 to 4 at their first duration and was used as the pivotal value for age 2. At the ends of the table the pivotal value were extended by imposing the condition that the third differences are constants and are equal to the last values obtain[ed] from the observation.

"The graduation was carried out using Jenkins fifth difference occulatory formula. To extend the mortality rates beyond age 77 a cubic was fitted to join the graduated curve smoothly. The cubic has the mortality rate at 77, a slope and a second derivative equal to those of the graduated curve at 77 and has a value of 1 at age 100.

"The graduated series was tested for smoothness. The number of expected deaths calculated from the graduated table and exposure was 5043.6. This value is only 8.4 less than the actually observed number of 5052, for the age groups 7 to 77.

"The average age at death from the graduated table was 57.44 years. The experience average age at death is 57.45 years.

"For smoothness, the summation of the absolute value of the third differences of the graduated series was only .00752.

"The graduated values of the crude mortality rates shall henceforth be referred to as the Basic Table."

[62]*Id.*, at 9.

"The loading should be sufficiently large to encompass the mortality experience of companies with liberal underwriting rules but not to the extent that the resulting mortality tables might as well be constructed using the worst experience of each company at different ages. The mortality table should be safe for use for all companies for policies issued at standard premium rates. For this purpose the Committee on Mortality agreed that a table which will result in about 95% confidence limit would be desirable.

LIFE EXPECTANCY FORMULAS OR TABLES COMPARED, 1970 OR EARLIER

Comparing the formula derived by the Supreme Court with other actuarial studies conducted in the Philippines at about the same period can give us an idea of the reasonability of the S.C. formula. The Hizon Study in 1960 and the Engracia Study in 1970 are used to accomplish the purpose.

First, to make our comparison simpler, the tables from the two studies are reduced into separate empirical formulas, similar to the of the S.C. formula. The results are hereinafter referred to as the Hizon Formula and the Engracia Formula. The three formulas, converted into simple equations[64], are as follows:

S.C. formula = 53.09 - 0.59 x Age
Engracia formula = 53.33 - 0.67 x Age
Hizon ia Formula = 58. 07 - 0.65 x Age

Note at ages zero, three and eighty, the life expectancy computed for each are as follows:

Table 1. Selected Values of Life Expectancy.

Age	S.C.	Hizon	Engracia
0	53.33	53.09	58.07
3	51.32	51.32	56.12
80	0	5.89	6.07

"Moreover, the final table should produce terminal reserves which has more or less constant relationship with those based on the basic table. Finally, should loaded table result in premium deficiency on term insurance plans, the deficiency should not be very large."

[63]*Ibid.*

[64]The graph as plotted by Ms. Engracia shows that life expectancy exhibits a more or less straight line between ages 0 (except for the initial ascent) and so the other graphs of life expectancy tables. The two estimates of life expectancy for these two ages were extracted from the their corresponding tables. Each of these sets of points were used to compute the line using the formula (Y-Yo) = m(X-Xo) where m = (E_{80}-Eo) / (80 -0), its slope, and E the expectancy. The formula is then expressed in the form Y = m X + m Eo.

The difference of results of the S.C. formula to each of the other formulas are as follows:

Table 2. Differences of Selected Values Using S.C. Minuend.

Age	Hizon-S.C.	Engracia-S.C.
0	-0.24	4.74
3	0	4.80
80	5.89	6.07

At age 0, The S.C. formula gives a slightly higher life expectancy values than the Hizon formula. However, this is immediately overcome by latter as early as at age 3. Reversing the trend, Hizon formula continues to give higher expectancy values than that of S.C., so that at age 80, the latter is already short of 5.89 years.

On the other hand, the Engracia formula gives a higher expectancy value right at the very start to the finish, with difference ranging from 4.74 to 6.07 years.

This means that as early as 1960, Philippine population has already been exhibiting higher life expectancy than that computed by the Supreme Court. This rise in life expectancy continued throughout the 1970's, and even to the 1980's as will be shown later. What does this imply? A number of things. If the injured is capable of earning P1,000.00 per month, this will be equivalent to 12,000.00 per annum. Taking 4.74 years difference, the beneficiary of the injured is short-changed by as much as P56,880.00, in a typical award by the Court for actual or compensatory damages for death or injury.

1980

Three tables will be compared: the S.C. table (constructed from the formula), the 1980 CSO referred to by the *Quilaton* case and the PIC.

Table 3. Life Expectancy Tables.

Age	CSO ex	PIC ex	S.C. ex
0	70.33	70.45	53.33
5	65.90	66.71	50.00
10	61.16	62.21	46.67
15	56.43	57.64	43.33
20	51.87	53.14	40.00
25	47.34	48.65	36.67
30	42.74	44.18	33.33
35	38.11	39.65	30.00
45	29.12	30.64	23.33
50	24.86	26.31	20.00
55	20.79	22.16	16.67
61	16.29	17.48	12.67
63	14.88	15.98	11.33
65	13.54	14.53	10.00
70	10.46	11.11	6.67
75	7.81	8.07	3.33
80	5.68	5.47	0.00
90	2.68		0.00

Taking the difference as before:

Table 4. Differences Using S.C. as Minuend.

Age	CSO-S.C.	PIC-S.C.
0	17	17.12
5	15.9	16.71
10	14.49	15.54
15	13.1	14.31
25	10.67	11.98
30	9.41	10.85
40	6.88	8.43
45	5.79	7.31
50	4.86	6.31
55	4.12	5.49

Age	CSO-S.C.	PIC-S.C.
61	3.62	4.81
62	3.58	4.73
63	3.55	4.65
65	3.54	4.53
70	3.79	4.44
75	4.48	4.74
80	5.68	5.47
90	2.68	

The lowest difference of estimates between the S.C. and 1980 CSO occurs at the age of 64, and using the same P1,000-monthly example, this is equivalent to grossly P1,000 x 12 x 3.53 or P42,360. At age 80, the difference is P68,000.00. Note alse that the lowest difference between the S.C. and the PIC happens at age 69, which in terms of pesos is P53,000. At age 80, this is P65,640. These are not meager amounts which the Court can arbitrarily ignore.

The difference of award in terms of percent under-valuation by the Supreme Court, using its current formula, is presented in the following table:

Table 5. Percentage Under-Valuation of S.C. awards ((T-S.C.)/S.C.) x 100%.

Age	% under- CSO	% under- PIC
0	31.88	32.10
5	31.80	33.42
10	31.05	33.30
15	30.23	33.03
20	29.68	32.85
30	28.23	32.55
35	27.03	32.17
45	24.82	31.33
50	24.30	31.55
55	24.72	32.93
60	27.61	36.83

Age	% under- CSO	% under- PIC
70	56.82	66.57
75	134.53	142.34
79	805.97	789.55

So that if the Supreme Court awarded P10,000 for an injured person aged 64, for instance, there is 42.92% undervaluing compared to PIC, which is P10,000 x 42.92/100 or P4292.00 in money terms. With CSO, the undervalue is 33.08% equivalent to P3308.00. In other words, the Court in the same situation would have awarded P14,292.00 and 13,308.00, using the respective tables.

CONCLUSION

Our jurisprudence on the award of compensatory damages for loss of earning capacity still has ample room for improvement, much of it in the area of computing the life expectancy and earning capacity of a human being. Since these elements determine, to a large extent, compensatory damages, these neglected areas are of grave importance. True enough, life expectancy is not an ordinary calculation one encounters in his everyday life. The technical and conceptual difficulties are undisputed. However difficult it may be, the fact remains that the problem must still be confronted.

Quilaton was a start towards a better solution. It was a brilliant spark of change from the rigid inorganic S.C. formula of 2/3 x (80-X) into a more fluid organic approach. It was a recognition of reality, a step by the Court towards a brave new world of statistics and mathematics, and their better approximation of reality. It was a very commendable attempt towards a more responsive legal regime. Sad to note, however, jurisprudential developments subsequent to *Quilaton* have missed or refused to see the light from the spark. One can only hope that someday the Court will tend to look more favorably on developing a more responsive law on compensatory damages for damage or injury.