

Government Actuary's Department

Actuarial Tables

With explanatory notes
for use in

Personal Injury and Fatal Accident cases

HER MAJESTY'S STATIONERY OFFICE

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for use in

Personal Injury and Fatal Accident cases

Prepared by an
Inter-Professional Working Party
of Actuaries and Lawyers
nominated by their professional bodies

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Fatal Accident and Personal Injury and Actuarial Tables

With explanatory notes for use in later-Professional Working Party of Actuaries and Institute of Actuaries

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Introduction

Proposals have been made from time to time that actuarial tables might be produced to assist in assessing damages in cases of personal injuries and fatal accidents, for example, by the Law Commission (Law Com. No. 56, 1973) and by the former Solicitor-General during the passage of the Administration of Justice Act 1982. Both branches of the legal profession in Great Britain have recently co-operated with the Faculty of Actuaries and the Institute of Actuaries to produce the following tables and notes. The tables have been prepared by the Government Actuary's Department and the explanatory notes by actuaries and lawyers nominated by all their professional bodies in Great Britain. I am particularly grateful to the actuaries for having nominated representatives of the highest calibre including a former President of the Institute and the Government Actuary.

The Lord Chancellor, Lord Hailsham of St Marylebone, was informed in advance of the proposal that the actuarial and legal professions should co-operate in the production of such tables and agreed that it would be helpful if this avenue of co-operation between the professions could be explored. Of course, it must be understood that the tables have not been prepared under his direction nor published with his authority.

The purpose of the tables is to help Courts in determining upon the appropriate figure for what lawyers describe as the "multiplier".

It must be emphasised that the tables do not take account of contingencies other than mortality. Consequently the Court will need to adjust the multiplier contained in the tables to take account of other factors.

Notwithstanding the need to adjust the multipliers contained in the tables, the size of some of the figures in the tables will undoubtedly come as a surprise to lawyers. However, the members of the Working Party unanimously concluded that the reasoning which leads to such figures could not

be faulted. As will be seen, the existence of a new type of Government stock played a significant part in our reasoning.

The present position

The Courts seek, by the award of a lump sum, to put the wage earner or, if he has been killed, his dependant into the same financial position as if the accident had not happened. It is up to the Plaintiff to invest that lump sum as best he can to replace the income lost for which he is being compensated. The Courts have decided that, in the majority of cases, inflation is to be disregarded when assessing damages, one reason being that inflation is best left to be dealt with by prudent investment policy (see *Lim v. Camden Health Authority*, [1980] A.C. 174 and cases cited therein). The Courts have taken the view that investment of the lump sum award in ordinary shares or a "basket" of equities and gilts would enable the Plaintiff to have an income derived from dividends and sales of shares which would broadly match the income he had lost; inflation would increase the dividends and market prices at which he would gradually be able to realise his holdings over the years to which the loss relates. Such presumed matching is of necessity imprecise and there is an unavoidable risk of injustice either to the Plaintiff or the Defendant.

Index-Linked Government Stock

Currently, the Courts are using multipliers which implicitly assume a discount rate of between 4% and 5% (*Lim v. Camden*). This rate compares with the rate of about 5% currently obtainable on a spread of ordinary shares if no allowance is made for the effects of future inflation or for the relative future prosperity or adversity of the Companies which issued those shares. However, the issue of Index-Linked Government Stock since 1981 has now made it possible to match the receipts from the investment of a lump sum almost precisely to the income loss for which the Plaintiff is being compensated. Such stocks are now an established part of the investment market. The nature of these stocks is such that the dividends rise in accordance with the rise in the Retail Price Index as does the payment on maturity.

A Plaintiff who has purchased ordinary shares or a basket of gilts and equities will receive interest and prices on sale which reflect market forces. In particular, market forces reflect views about anticipated inflation and, in the case of ordinary shares, views of the future prosperity of the parti-

cular company relative to other companies. As a result, particularly in the case of ordinary shares, the market price can alter considerably and very rapidly.

A Plaintiff who has bought index-linked Government stock is in a very different position. The future payments under the stock reflect price inflation almost exactly and there is no question of the Government failing to make the stipulated payments. The market value of such stocks represents the value of the future stipulated payments of interest and capital (ignoring the effects of future inflation thereon) discounted at a rate usually lying in the bracket $2\frac{1}{2}\%$ to $3\frac{1}{2}\%$ per annum. It is within that bracket that the yield on index-linked stocks has generally lain since their introduction to the market. Therefore, it is possible to provide a Plaintiff with such index-linked stocks on which the sums received as interest and payments received on maturity and sale would almost exactly replace the income lost by the Plaintiff in respect of which he is being compensated over the period to which the loss relates.

It is because the effect of inflation, on capital and income alike, is taken into account in the case of Index-Linked Government Stocks that the yield upon such stocks is lower and their capital value more stable than in the case of non-index-linked stocks. Whereas, in general, interest rates reflect expectations as to inflation based on past and existing inflation, and the fear of its continuance, the yield upon index-linked stocks is simply a measure of the real return which the market expects upon invested capital which is assumed to keep its value in real terms.

Obviously, if the Courts cease using multipliers which assume a discount rate of between 4% and 5% and use multipliers based upon the assumption that funds are to be invested in index-linked stocks discounted at a rate of between $2\frac{1}{2}\%$ and $3\frac{1}{2}\%$, it is inevitable that the size of the multipliers will increase. The conversion of prospective income which has been lost to the Plaintiff into a capital sum of equivalent value would accordingly be by means of a multiplier which embodies a discount rate in the range $2\frac{1}{2}\%$ to $3\frac{1}{2}\%$ and also allows for the effects of mortality. That is in the first instance; the Courts will need to make such adjustments as are necessary, for example to reflect the possibility that receipt of the lost income was not certain (as a result of ill health, redundancy, early retirement etc.), or that the income might have increased otherwise than as a result of inflation (because of promotion etc.), or that the Plaintiff's chances of survival to draw the lost income are not properly represented by the mortality rates of which the multiplier takes account.

Our reasoning

The Working Party concluded that the following arguments could not be faulted. The Courts seek to put the wage earner, or, if he has been killed, his dependant, into the same financial position as if the accident had not happened. Investment policy, however prudent, involves risks and it is not difficult to draw up a list of blue chip equities or reliable unit trusts which have performed poorly and, in some cases, disastrously. Index-Linked Government Stocks eliminate the risk. Whereas, in the past, a Plaintiff has had to speculate in the form of prudent investment by buying equities or a "basket" of equities and gilts or a selection of unit trusts, he need speculate no longer if he buys Index-Linked Government Stock. If the loss is, say, £5,000 per annum, he can be awarded damages which, if invested in such stocks, will provide him with almost exactly that sum in real terms.

It may be said that, in practice, the Plaintiff, having been awarded damages on the basis of assumed investment in Index-Linked Government Stocks, may invest in equities. However the Working Party concluded that it is difficult to argue that any Plaintiff should be obliged to speculate if he does not wish to do so, when there exists an investment which enables him to avoid doing so. In any event, a Plaintiff has been able to do the equivalent in the past in that he may not buy a prudent basket of equities or other investments, damages having been awarded on that basis, but may invest the entire sum in a single venture, for example a small shop. Alternatively, a Plaintiff may invest in a very speculative and imprudent investment or in something such as Krugerrands. For these reasons, the Working Party concluded that the fairest approach to the problem is to work on the basis of multipliers calculated upon the basis of presumed investment in Index-Linked Government Stock.

Since reaching this conclusion, the Working Party has read with great interest the speech of Lord Diplock in *Wright v. British Railways Board* 1983 (2 A.E.R. 698) on the subject of Index-Linked Government Stock.

The Tables

The tables take account of ordinary mortality risks. They are based upon the assumption that a capital sum will be awarded and that this sum will be exhausted at the end of the period during which the loss will occur.

The tables contain multipliers to be applied to figures of income after deduction of tax. If tax will be payable on the income derived from investing the award, the multiplier which is otherwise appropriate will need adjusting as described in the explanatory notes.

The tables take no account of risks other than mortality. For example, permanent ill health leading to loss of employment, whether due to accident or illness, is something to which any apparently healthy person is to some extent at risk, but which is not reflected in the tables. Of course the tables do not take account of factors such as loss of employment due to redundancy, early retirement, etc.

It will be seen that the tables cover rates between $1\frac{1}{2}\%$ and 5% . This has been done in case the Courts do not accept the Working Party's view that the fairest solution is to use tables based on Index-Linked Government Stocks.

I am grateful for the assistance given by members of the stock-broking firm of Grieson, Grant & Co.

MICHAEL OGDEN

EXPLANATORY NOTES

These explanatory notes have been prepared by representatives of the actuarial and legal professions.

1. The tables have been prepared by the Government Actuary's Department. 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.

2. The tables set out multipliers. These multipliers enable the user to assess the present capital value of future annual loss (net of tax) or annual expense calculated on the basis of various assumptions which are explained below. Accordingly, to find the present capital value of a given annual loss or expense, it is necessary to select the appropriate table, find the appropriate multiplier and then multiply by that figure the figure of the annual loss or expense.

3. The tables deal with annual loss or annual expense extending over three different periods of time. In each case there are separate tables for men and women.

4. In tables 1 and 2 the loss or expense is assumed to begin immediately and to continue for the whole of the rest of the Plaintiff's life allowing for the possibility of early death or prolonged life. ("The Plaintiff" here includes the deceased in fatal accident cases.)

In tables 3 and 4 the loss or expense is assumed to begin immediately but to continue only until the Plaintiff's retirement or earlier death. The age of retirement is assumed to be 65 for men and 60 for women.

In tables 5 and 6 it is assumed that the annual loss or annual expense will not begin until the Plaintiff reaches retirement (at 65 in the case of men and 60 for women) but will then continue for the whole of the rest of his or her life. The tables make due allowance for the chance that the Plaintiff may never live to reach the age of retirement.

5. To find the appropriate figure for the present value of a particular loss or expense you must first choose that table which relates to the period of loss or expense for which the individual Plaintiff is to be compensated *and* to the sex of the Plaintiff.

6. If for some reason the facts in a particular case do not correspond with the assumptions on which one of the tables is based, (if, for instance, it is known that the Plaintiff will have a different retiring age from that assumed in the table) then the tables can only be used by making an appropriate allowance for this difference; possibly with the assistance of an actuary.

7. The basis of the multipliers set out in the tables is that the lump sum will be invested and yield income (but that over the period in question the Plaintiff will gradually reduce the capital sum so that at the end of the period it is exhausted). Accordingly, an essential factor in arriving at the right figure is to choose the appropriate rate of interest. The tables set out multipliers based on rates of interest ranging from $1\frac{1}{2}\%$ to 5% .

8. The purpose of setting out figures based upon a range of rates of interest is to enable the user to choose a rate which reflects the "real rate of interest" that can be obtained upon the capital sum. In times of inflation high rates of interest can be obtained; these rates compensate the investor in part for the fall in the value of his capital and of the dividends he receives due to inflation. The real rate of interest may be defined as that part of the

actual rate which excludes this element. It has been held that in times of stable currency, when there is little or no inflation, a return on capital of 4% or 5% has been usual (see *Lim v. Camden* [1980] A.C. 174 and cases cited therein). However, there are now available Index-Linked Government Stocks and it is accordingly no longer necessary to speculate about either the future rates of inflation or the real rate of return obtainable on an investment. The redemption value and dividends of these stocks are adjusted from time to time so as to maintain the real value of the stock in the face of inflation. The current rates of interest on such stocks are published daily in *The Financial Times* and hitherto have fallen into the range of about $2\frac{1}{2}\%$ to $3\frac{1}{2}\%$ (gross). It may be thought that the return on such Index-Linked stocks is the most accurate reflection of the real rate of interest available to Plaintiffs seeking the prudent investment of awards of damages. In any event, when using the tables it will be necessary to use the real rate of interest which is deemed the most appropriate.

9. In order to arrive at a true present capital value of the Plaintiff's future loss or expense it will be necessary to consider whether he will have to pay a significant amount of tax on the income from his compensation. If he will pay little or no tax no adjustment of rate of interest will be required. If he will have to pay a significant percentage of that income in tax, then the rate of interest chosen to determine the present capital value of his loss or of his expense should be reduced accordingly.

10. Thus, if it is decided that the rate of interest to be used to value the loss, without allowing for tax, is (say) $3\frac{1}{2}\%$ and the Plaintiff will pay no tax, the figure of present value is to be found by using the multiplier in the column headed $3\frac{1}{2}\%$. If, however, he will pay 30% tax on the income from his compensation, so that the net income he receives will be at the rate of only 70% of $3\frac{1}{2}\%$, that is at 2.45%, then the best figure is to be found in the column headed $2\frac{1}{2}\%$. (In some cases it may be appropriate to take a figure lying between that given in two adjoining columns; if, for instance, the net return is $2\frac{3}{4}\%$.) However, it should be borne in mind that as the capital is gradually exhausted the total income obtainable from the interest upon it will fall; and the rate of tax payable may therefore also fall. This may mean that the deduction to be made for tax should be a smaller percentage than the rate of tax apparently applicable at the outset.

11. In paragraph 6 of these notes reference was made to the problem that will arise where the Plaintiff's retiring age is different from that assumed in the tables. Such a problem may arise in valuing a loss or expense beginning immediately but ending at retirement; or in valuing a loss or expense which

will not begin until the Plaintiff reaches retirement but will then continue until death. In the former case, that is where the loss or expense to be valued covers the period up to retirement, the following procedure will be found to be satisfactory in most cases. Where the Plaintiff's actual retiring age would have been earlier than that assumed in the tables he is treated as though he were correspondingly older than his true age. Thus a man of 42, who would have retired at 60, is treated as though he were 47. The appropriate multiplier is then obtained from the table (Table 3). A further correction should then be made, because the Plaintiff's chances of survival are greater at 42 than if he were in fact 47. There should therefore be added a half percent to the multiplier for each year (here 5 years) by which the Plaintiff's personal retiring age is earlier than 65. In the case of a woman the correction required would only be one quarter per cent for each such year. This is because, on average, women live longer than men.

12. Where the Plaintiff would have retired later than the age assumed in the table the procedure is reversed. Thus a woman of 42, who would have retired at 65, is treated as though she were 37. The appropriate multiplier is then obtained from the table (in this case Table 4) and the further correction required is made by reducing the multiplier by one quarter per cent for each year by which the retiring age of the Plaintiff exceeds the retiring age assumed in the table. In the case of a man the reduction would, of course, be by one half per cent for each year.

13. When the loss or expense to be valued is that from the date of retirement to death, and the Plaintiff's date of retirement differs from that assumed in the tables, a different approach is necessary. The first step is to assume that there is a present loss which will continue for the rest of the Plaintiff's life and from Table 1 or 2 establish the value of that loss or expense over the whole period from the date of assessment until the Plaintiff's death. The second step is to establish the value of such loss or expense over the period from the date of assessment until the Plaintiff's expected date of retirement following the procedure explained in paragraphs 11 and 12 above. The third step is to subtract the second figure from the first. The balance remaining represents the present value of the Plaintiff's loss or expense between retirement and death.

14. The tables have been calculated to take into account the chances that the Plaintiff will die young (or live to be very old) based on population mortality. They do not take account of the other risks and vicissitudes of life, such as the possibility that the Plaintiff would for periods have ceased to earn due to ill-health or loss of employment. Similarly, they take no

account of the fact that many women cease work for substantial periods to have and care for children.

15. The tables do not provide an immediate answer when the loss or expense to be valued is not assumed to be stable; where, for instance, the Plaintiff's lost earnings were on a sliding scale or he was expected to achieve promotion. It may be possible to use the tables to deal with such situations by increasing the basic figure of annual loss or expenses; or by choosing a lower rate of interest and so a higher multiplier than would otherwise have been chosen.

16. If doubt exists that the tables are appropriate to a particular case which appears to present significant difficulties of substance it would be prudent to take actuarial advice on the tables' applicability.

SUMMARY

17. To summarize, in using the tables take the following steps:

- (1) Choose the tables relating to the appropriate period of loss or expense.
- (2) Choose the table, relating to that period, appropriate to the sex of the Plaintiff.
- (3) Choose the rate of interest appropriate before allowing for the deduction, if any, of tax from the income to be obtained from the lump sum.
- (4) If appropriate, choose the lower rate of interest appropriate to reflect the effect of tax on that income.
- (5) Find the figure under the column in the table chosen given against the age at trial (or, in a fatal accident case, at the death) of the Plaintiff.
- (6) Multiply by that figure the annual loss (net of tax) or expense.
- (7) Make any necessary deduction for contingencies (other than early or late death).

Any adjustment for an expected increase in the annual loss or expense (not due to inflation) can be made at stage 3 or 4 (by choosing a lower rate) or at stage 6 (by increasing the figure of annual loss or expense). In cases where the Plaintiff's expected age of retirement differs from that assumed in the tables the more complicated procedure explained in paragraphs 11 to 14 above should be followed.

Table 1 Multipliers for pecuniary loss for life (males)

Age at date of trial	Multiplier calculated with allowance for population mortality and rate of interest of								Age at date of trial
	1½%	2%	2½%	3%	3½%	4%	4½%	5%	
16	36.9	32.8	29.4	26.5	24.1	22.0	20.2	18.7	16
17	36.5	32.5	29.2	26.3	24.0	21.9	20.1	18.6	17
18	36.0	32.2	28.9	26.2	23.8	21.8	20.0	18.5	18
19	35.6	31.8	28.7	25.9	23.6	21.7	19.9	18.4	19
20	35.2	31.5	28.4	25.7	23.5	21.5	19.8	18.4	20
21	34.7	31.1	28.1	25.5	23.3	21.4	19.7	18.3	21
22	34.3	30.8	27.8	25.3	23.1	21.2	19.6	18.2	22
23	33.8	30.4	27.5	25.1	22.9	21.1	19.5	18.1	23
24	33.3	30.1	27.2	24.8	22.7	20.9	19.4	18.0	24
25	32.9	29.7	26.9	24.6	22.5	20.8	19.2	17.9	25
26	32.4	29.3	26.6	24.3	22.3	20.6	19.1	17.8	26
27	31.9	28.9	26.3	24.1	22.1	20.4	18.9	17.6	27
28	31.4	28.5	26.0	23.8	21.9	20.2	18.8	17.5	28
29	30.9	28.1	25.6	23.5	21.7	20.1	18.6	17.4	29
30	30.4	27.6	25.3	23.2	21.4	19.9	18.5	17.2	30
31	29.8	27.2	24.9	22.9	21.2	19.6	18.3	17.1	31
32	29.3	26.8	24.6	22.6	20.9	19.4	18.1	16.9	32
33	28.8	26.3	24.2	22.3	20.7	19.2	17.9	16.8	33
34	28.2	25.9	23.8	22.0	20.4	19.0	17.7	16.6	34
35	27.7	25.4	23.4	21.7	20.1	18.7	17.5	16.4	35
36	27.1	24.9	23.0	21.3	19.8	18.5	17.3	16.2	36
37	26.6	24.5	22.6	21.0	19.5	18.2	17.1	16.1	37
38	26.0	24.0	22.2	20.6	19.2	18.0	16.9	15.9	38
39	25.4	23.5	21.8	20.3	18.9	17.7	16.6	15.7	39

40	24.9	23.0	21.4	19.9	18.6	17.4	16.4	15.5	40
41	24.3	22.5	20.9	19.5	18.3	17.2	16.1	15.2	41
42	23.7	22.0	20.5	19.2	18.0	16.9	15.9	15.0	42
43	23.1	21.5	20.1	18.8	17.6	16.6	15.6	14.8	43
44	22.5	21.0	19.6	18.4	17.3	16.3	15.4	14.5	44
45	21.9	20.5	19.2	18.0	16.9	16.0	15.1	14.3	45
46	21.4	20.0	18.7	17.6	16.6	15.7	14.8	14.0	46
47	20.8	19.4	18.3	17.2	16.2	15.3	14.5	13.8	47
48	20.2	18.9	17.8	16.8	15.9	15.0	14.2	13.5	48
49	19.6	18.4	17.3	16.4	15.5	14.7	13.9	13.3	49
50	19.0	17.9	16.9	16.0	15.1	14.3	13.6	13.0	50
51	18.4	17.4	16.4	15.5	14.7	14.0	13.3	12.7	51
52	17.8	16.9	15.9	15.1	14.4	13.7	13.0	12.4	52
53	17.3	16.3	15.5	14.7	14.0	13.3	12.7	12.1	53
54	16.7	15.8	15.0	14.3	13.6	13.0	12.4	11.9	54
55	16.1	15.3	14.5	13.8	13.2	12.6	12.1	11.6	55
56	15.6	14.8	14.1	13.4	12.8	12.3	11.7	11.3	56
57	15.0	14.3	13.6	13.0	12.4	11.9	11.4	11.0	57
58	14.4	13.8	13.1	12.6	12.0	11.5	11.1	10.6	58
59	13.9	13.3	12.7	12.1	11.6	11.2	10.7	10.3	59
60	13.4	12.8	12.2	11.7	11.3	10.8	10.4	10.0	60
61	12.8	12.3	11.8	11.3	10.9	10.5	10.1	9.7	61
62	12.3	11.8	11.3	10.9	10.5	10.1	9.7	9.4	62
63	11.8	11.3	10.9	10.5	10.1	9.7	9.4	9.1	63
64	11.3	10.9	10.5	10.1	9.7	9.4	9.1	8.8	64
65	10.8	10.4	10.0	9.7	9.4	9.0	8.8	8.5	65
66	10.3	10.0	9.6	9.3	9.0	8.7	8.4	8.2	66
67	9.9	9.5	9.2	8.9	8.6	8.4	8.1	7.9	67
68	9.4	9.1	8.8	8.6	8.3	8.0	7.8	7.6	68
69	9.0	8.7	8.5	8.2	8.0	7.7	7.5	7.3	69
70	8.6	8.3	8.1	7.9	7.6	7.4	7.2	7.0	70

Table 2 Multipliers for pecuniary loss for life (females)

Age at date of trial	Multiplier calculated with allowance for population mortality and rate of interest of										Age at date of trial
	1½%	2%	2½%	3%	3½%	4%	4½%	5%			
16	39.4	34.8	30.9	27.7	25.0	22.7	20.8	19.1	16		
17	39.0	34.5	30.7	27.5	24.9	22.6	20.7	19.1	17		
18	38.6	34.2	30.5	27.4	24.8	22.5	20.6	19.0	18		
19	38.2	33.9	30.2	27.2	24.6	22.4	20.6	18.9	19		
20	37.8	33.5	30.0	27.0	24.5	22.3	20.5	18.9	20		
21	37.4	33.2	29.7	26.8	24.3	22.2	20.4	18.8	21		
22	37.0	32.9	29.5	26.6	24.2	22.1	20.3	18.7	22		
23	36.5	32.6	29.2	26.4	24.0	22.0	20.2	18.6	23		
24	36.1	32.2	29.0	26.2	23.8	21.8	20.1	18.6	24		
25	35.6	31.9	28.7	26.0	23.7	21.7	20.0	18.5	25		
26	35.2	31.5	28.4	25.8	23.5	21.5	19.8	18.4	26		
27	34.7	31.1	28.1	25.5	23.3	21.4	19.7	18.3	27		
28	34.2	30.8	27.8	25.3	23.1	21.2	19.6	18.2	28		
29	33.8	30.4	27.5	25.0	22.9	21.1	19.5	18.1	29		
30	33.3	30.0	27.2	24.8	22.7	20.9	19.3	18.0	30		
31	32.8	29.6	26.9	24.5	22.5	20.7	19.2	17.8	31		
32	32.3	29.2	26.6	24.3	22.3	20.6	19.0	17.7	32		
33	31.8	28.8	26.2	24.0	22.1	20.4	18.9	17.6	33		
34	31.3	28.4	25.9	23.7	21.8	20.2	18.7	17.5	34		
35	30.8	28.0	25.6	23.4	21.6	20.0	18.6	17.3	35		
36	30.3	27.6	25.2	23.2	21.4	19.8	18.4	17.2	36		
37	29.7	27.1	24.8	22.9	21.1	19.6	18.2	17.0	37		
38	29.2	26.7	24.5	22.6	20.9	19.4	18.1	16.9	38		
39	28.7	26.2	24.1	22.3	20.6	19.2	17.9	16.7	39		

40	28.1	25.8	23.7	21.9	20.3	18.9	17.7	17.7	16.6	16.6	40
41	27.6	25.3	23.4	21.6	20.1	18.7	17.5	17.5	16.4	16.4	41
42	27.1	24.9	23.0	21.3	19.8	18.5	17.3	17.3	16.2	16.2	42
43	26.5	24.4	22.6	21.0	19.5	18.2	17.1	17.1	16.0	16.0	43
44	26.0	24.0	22.2	20.6	19.2	18.0	16.8	16.8	15.8	15.8	44
45	25.4	23.5	21.8	20.3	18.9	17.7	16.6	16.6	15.6	15.6	45
46	24.9	23.0	21.4	19.9	18.6	17.4	16.4	16.4	15.4	15.4	46
47	24.3	22.5	21.0	19.6	18.3	17.2	16.2	16.2	15.2	15.2	47
48	23.7	22.1	20.6	19.2	18.0	16.9	15.9	15.9	15.0	15.0	48
49	23.2	21.6	20.1	18.8	17.7	16.6	15.7	15.7	14.8	14.8	49
50	22.6	21.1	19.7	18.5	17.4	16.3	15.4	15.4	14.6	14.6	50
51	22.0	20.6	19.3	18.1	17.0	16.1	15.2	15.2	14.4	14.4	51
52	21.5	20.1	18.8	17.7	16.7	15.8	14.9	14.9	14.1	14.1	52
53	20.9	19.6	18.4	17.3	16.3	15.4	14.6	14.6	13.9	13.9	53
54	20.3	19.1	17.9	16.9	16.0	15.1	14.4	14.4	13.6	13.6	54
55	19.8	18.6	17.5	16.5	15.6	14.8	14.1	14.1	13.4	13.4	55
56	19.2	18.1	17.0	16.1	15.3	14.5	13.8	13.8	13.1	13.1	56
57	18.6	17.5	16.6	15.7	14.9	14.2	13.5	13.5	12.9	12.9	57
58	18.0	17.0	16.1	15.3	14.5	13.8	13.2	13.2	12.6	12.6	58
59	17.4	16.5	15.6	14.9	14.1	13.5	12.9	12.9	12.3	12.3	59
60	16.8	16.0	15.2	14.4	13.7	13.1	12.5	12.5	12.0	12.0	60
61	16.3	15.4	14.7	14.0	13.4	12.8	12.2	12.2	11.7	11.7	61
62	15.7	14.9	14.2	13.6	13.0	12.4	11.9	11.9	11.4	11.4	62
63	15.1	14.4	13.7	13.1	12.6	12.0	11.5	11.5	11.1	11.1	63
64	14.5	13.9	13.2	12.7	12.1	11.7	11.2	11.2	10.8	10.8	64
65	13.9	13.3	12.8	12.2	11.7	11.3	10.8	10.8	10.4	10.4	65
66	13.4	12.8	12.3	11.8	11.3	10.9	10.5	10.5	10.1	10.1	66
67	12.8	12.3	11.8	11.3	10.9	10.5	10.1	10.1	9.8	9.8	67
68	12.3	11.8	11.3	10.9	10.5	10.1	9.8	9.8	9.4	9.4	68
69	11.7	11.3	10.8	10.4	10.1	9.7	9.4	9.4	9.1	9.1	69
70	11.2	10.8	10.4	10.0	9.7	9.3	9.0	9.0	8.8	8.8	70

Table 3 Multipliers for loss of earnings to pension age 65 (males)

Age at date of trial	Multiplier calculated with allowance for population mortality and rate of interest of										Age at date of trial
	1½%	2%	2½%	3%	3½%	4%	4½%	5%			
16	33.1	30.0	27.2	24.9	22.9	21.1	19.5	18.1			16
17	32.6	29.6	26.9	24.6	22.7	20.9	19.4	18.0			17
18	32.1	29.2	26.6	24.4	22.5	20.7	19.2	17.9			18
19	31.6	28.8	26.3	24.1	22.2	20.6	19.1	17.8			19
20	31.1	28.4	26.0	23.9	22.0	20.4	19.0	17.7			20
21	30.6	28.0	25.6	23.6	21.8	20.2	18.8	17.6			21
22	30.1	27.6	25.3	23.3	21.6	20.0	18.6	17.4			22
23	29.6	27.1	24.9	23.0	21.3	19.8	18.5	17.3			23
24	29.1	26.7	24.6	22.7	21.1	19.6	18.3	17.1			24
25	28.5	26.2	24.2	22.4	20.8	19.4	18.1	17.0			25
26	28.0	25.8	23.8	22.1	20.6	19.2	17.9	16.8			26
27	27.4	25.3	23.4	21.8	20.3	18.9	17.7	16.7			27
28	26.8	24.8	23.0	21.4	20.0	18.7	17.5	16.5			28
29	26.2	24.3	22.6	21.1	19.7	18.4	17.3	16.3			29
30	25.7	23.8	22.2	20.7	19.4	18.2	17.1	16.1			30
31	25.1	23.3	21.7	20.3	19.1	17.9	16.8	15.9			31
32	24.4	22.8	21.3	19.9	18.7	17.6	16.6	15.7			32
33	23.8	22.3	20.8	19.5	18.4	17.3	16.3	15.5			33
34	23.2	21.7	20.4	19.1	18.0	17.0	16.1	15.2			34
35	22.6	21.2	19.9	18.7	17.7	16.7	15.8	15.0			35
36	21.9	20.6	19.4	18.3	17.3	16.4	15.5	14.7			36
37	21.3	20.0	18.9	17.9	16.9	16.0	15.2	14.5			37
38	20.6	19.5	18.4	17.4	16.5	15.7	14.9	14.2			38
39	20.0	18.9	17.9	16.9	16.1	15.3	14.6	13.9			39

40	19.3	18.3	17.3	16.5	15.7	14.9	14.2	13.6	40
41	18.6	17.7	16.8	16.0	15.2	14.5	13.9	13.3	41
42	18.0	17.1	16.3	15.5	14.8	14.1	13.5	12.9	42
43	17.3	16.5	15.7	15.0	14.3	13.7	13.1	12.6	43
44	16.6	15.8	15.1	14.5	13.9	13.3	12.8	12.3	44
45	15.9	15.2	14.5	13.9	13.4	12.9	12.4	11.9	45
46	15.2	14.5	14.0	13.4	12.9	12.4	11.9	11.5	46
47	14.5	13.9	13.4	12.9	12.4	11.9	11.5	11.1	47
48	13.8	13.2	12.8	12.3	11.9	11.5	11.1	10.7	48
49	13.0	12.6	12.1	11.7	11.3	11.0	10.6	10.3	49
50	12.3	11.9	11.5	11.1	10.8	10.5	10.1	9.8	50
51	11.6	11.2	10.9	10.5	10.2	9.9	9.6	9.4	51
52	10.8	10.5	10.2	9.9	9.6	9.4	9.1	8.9	52
53	10.1	9.8	9.5	9.3	9.1	8.8	8.6	8.4	53
54	9.3	9.1	8.9	8.7	8.4	8.2	8.1	7.9	54
55	8.6	8.4	8.2	8.0	7.8	7.7	7.5	7.3	55
56	7.8	7.6	7.5	7.3	7.2	7.0	6.9	6.8	56
57	7.0	6.9	6.7	6.6	6.5	6.4	6.3	6.2	57
58	6.2	6.1	6.0	5.9	5.8	5.7	5.6	5.5	58
59	5.4	5.3	5.2	5.2	5.1	5.0	5.0	4.9	59
60	4.5	4.5	4.4	4.4	4.3	4.3	4.2	4.2	60
61	3.7	3.7	3.6	3.6	3.6	3.5	3.5	3.5	61
62	2.8	2.8	2.8	2.8	2.7	2.7	2.7	2.7	62
63	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	63
64	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	64

Table 4 Multipliers for loss of earnings to pension age 60 (females)

Age at date of trial	Multiplier calculated with allowance for population mortality and rate of interest of										Age at date of trial
	1½%	2%	2½%	3%	3½%	4%	4½%	5%			
16	31.6	28.8	26.3	24.2	22.3	20.7	19.2	17.9			16
17	31.1	28.4	26.0	23.9	22.1	20.5	19.0	17.7			17
18	30.6	27.9	25.7	23.6	21.9	20.3	18.9	17.6			18
19	30.0	27.5	25.3	23.3	21.6	20.1	18.7	17.5			19
20	29.5	27.1	24.9	23.0	21.4	19.9	18.5	17.3			20
21	28.9	26.6	24.5	22.7	21.1	19.6	18.4	17.2			21
22	28.4	26.1	24.2	22.4	20.8	19.4	18.2	17.0			22
23	27.8	25.7	23.8	22.1	20.5	19.2	18.0	16.9			23
24	27.2	25.2	23.4	21.7	20.3	18.9	17.8	16.7			24
25	26.6	24.7	22.9	21.4	20.0	18.7	17.5	16.5			25
26	26.0	24.2	22.5	21.0	19.6	18.4	17.3	16.3			26
27	25.4	23.7	22.1	20.6	19.3	18.2	17.1	16.1			27
28	24.8	23.1	21.6	20.2	19.0	17.9	16.8	15.9			28
29	24.2	22.6	21.2	19.8	18.7	17.6	16.6	15.7			29
30	23.6	22.1	20.7	19.4	18.3	17.3	16.3	15.5			30
31	22.9	21.5	20.2	19.0	17.9	16.9	16.0	15.2			31
32	22.3	20.9	19.7	18.6	17.6	16.6	15.8	15.0			32
33	21.6	20.4	19.2	18.1	17.2	16.3	15.4	14.7			33
34	21.0	19.8	18.7	17.7	16.8	15.9	15.1	14.4			34
35	20.3	19.2	18.2	17.2	16.3	15.5	14.8	14.1			35
36	19.6	18.6	17.6	16.7	15.9	15.2	14.5	13.8			36
37	18.9	17.9	17.1	16.2	15.5	14.8	14.1	13.5			37
38	18.2	17.3	16.5	15.7	15.0	14.4	13.7	13.2			38
39	17.5	16.7	15.9	15.2	14.5	13.9	13.3	12.8			39

40	16.8	16.0	15.3	14.7	14.1	13.5	12.9	12.4	40
41	16.0	15.4	14.7	14.1	13.6	13.0	12.5	12.1	41
42	15.3	14.7	14.1	13.5	13.0	12.5	12.1	11.7	42
43	14.5	14.0	13.5	13.0	12.5	12.1	11.6	11.2	43
44	13.8	13.3	12.8	12.4	11.9	11.5	11.2	10.8	44
45	13.0	12.6	12.2	11.8	11.4	11.0	10.7	10.3	45
46	12.2	11.9	11.5	11.1	10.8	10.5	10.2	9.9	46
47	11.5	11.1	10.8	10.5	10.2	9.9	9.6	9.4	47
48	10.7	10.4	10.1	9.8	9.6	9.3	9.1	8.8	48
49	9.9	9.6	9.4	9.1	8.9	8.7	8.5	8.3	49
50	9.0	8.8	8.6	8.4	8.2	8.1	7.9	7.7	50
51	8.2	8.0	7.9	7.7	7.5	7.4	7.2	7.1	51
52	7.4	7.2	7.1	7.0	6.8	6.7	6.6	6.5	52
53	6.5	6.4	6.3	6.2	6.1	6.0	5.9	5.8	53
54	5.6	5.5	5.5	5.4	5.3	5.2	5.2	5.1	54
55	4.7	4.7	4.6	4.6	4.5	4.5	4.4	4.4	55
56	3.8	3.8	3.8	3.7	3.7	3.6	3.6	3.6	56
57	2.9	2.9	2.9	2.8	2.8	2.8	2.8	2.8	57
58	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	58
59	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	59

Table 5 Multipliers for loss of pension commencing age 65 (males)

Age at date of trial	Multiplier calculated with allowance for population mortality and rate of interest of										Age at date of trial
	1½%	2%	2½%	3%	3½%	4%	4½%	5%			
16	3.8	2.9	2.2	1.6	1.3	1.0	.7	.6			16
17	3.8	2.9	2.2	1.7	1.3	1.0	.8	.6			17
18	3.9	3.0	2.3	1.8	1.3	1.0	.8	.6			18
19	4.0	3.0	2.3	1.8	1.4	1.1	.8	.7			19
20	4.0	3.1	2.4	1.9	1.4	1.1	.9	.7			20
21	4.1	3.2	2.5	1.9	1.5	1.2	.9	.7			21
22	4.2	3.2	2.5	2.0	1.6	1.2	1.0	.8			22
23	4.2	3.3	2.6	2.0	1.6	1.3	1.0	.8			23
24	4.3	3.4	2.7	2.1	1.7	1.3	1.1	.8			24
25	4.4	3.4	2.7	2.2	1.7	1.4	1.1	.9			25
26	4.4	3.5	2.8	2.2	1.8	1.4	1.1	.9			26
27	4.5	3.6	2.9	2.3	1.9	1.5	1.2	1.0			27
28	4.6	3.7	2.9	2.4	1.9	1.6	1.3	1.0			28
29	4.6	3.7	3.0	2.4	2.0	1.6	1.3	1.1			29
30	4.7	3.8	3.1	2.5	2.1	1.7	1.4	1.1			30
31	4.8	3.9	3.2	2.6	2.1	1.8	1.4	1.2			31
32	4.9	4.0	3.3	2.7	2.2	1.8	1.5	1.2			32
33	4.9	4.1	3.4	2.8	2.3	1.9	1.6	1.3			33
34	5.0	4.2	3.4	2.9	2.4	2.0	1.6	1.4			34
35	5.1	4.2	3.5	2.9	2.5	2.1	1.7	1.4			35
36	5.2	4.3	3.6	3.0	2.5	2.1	1.8	1.5			36
37	5.3	4.4	3.7	3.1	2.6	2.2	1.9	1.6			37
38	5.4	4.5	3.8	3.2	2.7	2.3	2.0	1.7			38
39	5.4	4.6	3.9	3.3	2.8	2.4	2.1	1.8			39

40	5.5	4.7	4.0	3.4	2.9	2.5	2.2	1.9	40
41	5.6	4.8	4.1	3.6	3.1	2.6	2.3	2.0	41
42	5.7	4.9	4.3	3.7	3.2	2.7	2.4	2.1	42
43	5.8	5.0	4.4	3.8	3.3	2.9	2.5	2.2	43
44	5.9	5.2	4.5	3.9	3.4	3.0	2.6	2.3	44
45	6.1	5.3	4.6	4.0	3.5	3.1	2.7	2.4	45
46	6.2	5.4	4.8	4.2	3.7	3.3	2.9	2.5	46
47	6.3	5.6	4.9	4.3	3.8	3.4	3.0	2.7	47
48	6.4	5.7	5.0	4.5	4.0	3.6	3.2	2.8	48
49	6.6	5.8	5.2	4.6	4.2	3.7	3.3	3.0	49
50	6.7	6.0	5.4	4.8	4.3	3.9	3.5	3.2	50
51	6.9	6.2	5.5	5.0	4.5	4.1	3.7	3.3	51
52	7.0	6.3	5.7	5.2	4.7	4.3	3.9	3.5	52
53	7.2	6.5	5.9	5.4	4.9	4.5	4.1	3.8	53
54	7.4	6.7	6.1	5.6	5.1	4.7	4.3	4.0	54
55	7.6	6.9	6.4	5.9	5.4	5.0	4.6	4.2	55
56	7.8	7.2	6.6	6.1	5.6	5.2	4.8	4.5	56
57	8.0	7.4	6.9	6.4	5.9	5.5	5.1	4.8	57
58	8.2	7.7	7.2	6.7	6.2	5.8	5.4	5.1	58
59	8.5	8.0	7.5	7.0	6.6	6.2	5.8	5.4	59
60	8.8	8.3	7.8	7.3	6.9	6.5	6.2	5.8	60
61	9.1	8.6	8.2	7.7	7.3	6.9	6.6	6.3	61
62	9.5	9.0	8.6	8.1	7.7	7.4	7.0	6.7	62
63	9.9	9.4	9.0	8.6	8.2	7.9	7.5	7.2	63
64	10.3	9.9	9.5	9.1	8.8	8.4	8.1	7.8	64
65	10.8	10.4	10.0	9.7	9.4	9.0	8.8	8.5	65

Table 6 Multipliers for loss of pension commencing age 60 (females)

Age at date of trial	Multiplier calculated with allowance for population mortality and rate of interest of										Age at date of trial
	1½%	2%	2½%	3%	3½%	4%	4½%	5%			
16	7.8	6.0	4.6	3.5	2.7	2.1	1.6	1.3			16
17	8.0	6.1	4.7	3.6	2.8	2.2	1.7	1.3			17
18	8.1	6.2	4.8	3.7	2.9	2.3	1.8	1.4			18
19	8.2	6.4	4.9	3.9	3.0	2.4	1.8	1.5			19
20	8.3	6.5	5.1	4.0	3.1	2.5	1.9	1.5			20
21	8.5	6.6	5.2	4.1	3.2	2.6	2.0	1.6			21
22	8.6	6.8	5.3	4.2	3.3	2.7	2.1	1.7			22
23	8.7	6.9	5.5	4.3	3.5	2.8	2.2	1.8			23
24	8.9	7.0	5.6	4.5	3.6	2.9	2.3	1.9			24
25	9.0	7.2	5.7	4.6	3.7	3.0	2.4	2.0			25
26	9.1	7.3	5.9	4.8	3.8	3.1	2.5	2.1			26
27	9.3	7.5	6.0	4.9	4.0	3.2	2.6	2.2			27
28	9.4	7.6	6.2	5.0	4.1	3.4	2.8	2.3			28
29	9.6	7.8	6.4	5.2	4.3	3.5	2.9	2.4			29
30	9.7	7.9	6.5	5.4	4.4	3.6	3.0	2.5			30
31	9.9	8.1	6.7	5.5	4.6	3.8	3.2	2.6			31
32	10.0	8.3	6.9	5.7	4.7	3.9	3.3	2.8			32
33	10.2	8.5	7.0	5.9	4.9	4.1	3.5	2.9			33
34	10.3	8.6	7.2	6.0	5.1	4.3	3.6	3.1			34
35	10.5	8.8	7.4	6.2	5.3	4.5	3.8	3.2			35
36	10.7	9.0	7.6	6.4	5.5	4.6	3.9	3.4			36
37	10.8	9.2	7.8	6.6	5.6	4.8	4.1	3.5			37
38	11.0	9.4	8.0	6.8	5.9	5.0	4.3	3.7			38
39	11.2	9.6	8.2	7.0	6.1	5.2	4.5	3.9			39

40	11.4	9.8	8.4	7.3	6.3	5.4	4.7	4.1	40
41	11.6	10.0	8.6	7.5	6.5	5.7	5.0	4.3	41
42	11.8	10.2	8.9	7.7	6.8	5.9	5.2	4.6	42
43	12.0	10.4	9.1	8.0	7.0	6.2	5.4	4.8	43
44	12.2	10.7	9.4	8.2	7.3	6.4	5.7	5.0	44
45	12.4	10.9	9.6	8.5	7.5	6.7	6.0	5.3	45
46	12.6	11.2	9.9	8.8	7.8	7.0	6.2	5.6	46
47	12.8	11.4	10.2	9.1	8.1	7.3	6.5	5.9	47
48	13.1	11.7	10.5	9.4	8.4	7.6	6.9	6.2	48
49	13.3	12.0	10.8	9.7	8.8	7.9	7.2	6.5	49
50	13.6	12.3	11.1	10.0	9.1	8.3	7.6	6.9	50
51	13.8	12.6	11.4	10.4	9.5	8.7	7.9	7.3	51
52	14.1	12.9	11.8	10.8	9.9	9.1	8.3	7.7	52
53	14.4	13.2	12.1	11.1	10.3	9.5	8.7	8.1	53
54	14.7	13.5	12.5	11.5	10.7	9.9	9.2	8.5	54
55	15.0	13.9	12.9	12.0	11.1	10.4	9.7	9.0	55
56	15.3	14.3	13.3	12.4	11.6	10.8	10.2	9.5	56
57	15.7	14.7	13.7	12.9	12.1	11.4	10.7	10.1	57
58	16.1	15.1	14.2	13.4	12.6	11.9	11.3	10.7	58
59	16.4	15.5	14.7	13.9	13.2	12.5	11.9	11.3	59
60	16.8	16.0	15.2	14.4	13.7	13.1	12.5	12.0	60

ACTUARIAL DATA

The functions tabulated are:

Tables 1 and 2 \bar{a}_x

Table 3 $\bar{a}_{x:\overline{65-x}|}$

Table 4 $\bar{a}_{x:\overline{60-x}|}$

Table 5 $(65-x) \mid \bar{a}_{65}$

Table 6 $(60-x) \mid \bar{a}_{60}$

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Loadings: None

Interest: As stated in the Tables

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