

APPLICATION OF DISCOUNTED CASH FLOW TECHNIQUE  
TO EVALUATION OF RETIREMENT ETC BENEFITS

The following example illustrates the manner in which the technique is applied to reduce the amount of any benefit to a value expressed as a percentage of annual salary. This permits comparison to take place between the different forms of benefit (see Appendix III(iii)).

The example is based on a contract gratuity with a starting salary of \$24,000 p.a. The assumptions of Appendix III(i) have been used.

Year	Salary Accumulating at 12% (\$)	Value of Benefit (25% Gratuity) (\$)	Value in Current Terms Discounting at 13% p.a. (\$)
1	24,000		
2	26,880		
3	30,110	20,250	14,040
4	33,720		
5	37,760		
6	42,300	28,450	13,660
7	47,370		
8	53,060		
9	59,420	39,970	13,310
10	66,550		
11	74,540		
12	83,490	56,150	12,950
13	93,500		
14	104,720		
15	117,290	78,880	12,610
16	131,370		
17	147,130		
18	164,780	110,820	12,230
19	184,560		
20	206,710		
21	231,510	155,700	11,960
22	259,290		
23	290,410		
24	325,260	218,740	11,640
25	364,290		
26	408,000		
27	456,960	307,310	11,340
28	511,800		
29	573,210		
30	642,000	431,750	11,050
<b>Total</b>			124,840

$$\text{ANNUAL VALUE OF BENEFIT} = \frac{124,840}{30 \text{ YEARS}} = \$4,161$$

AS PERCENTAGE OF STARTING SALARY

$$= \frac{\$4,161}{\$24,000} \times 100\% = 17.3\%$$

EVALUATION OF RETIREMENT ETC BENEFITS  
TESTING OF PROPOSED METHODOLOGY

In order to test the proposed methodology we compared the benefits of a number of company schemes chosen from those covered by the PSRU 1983 Fringe Benefits Report (FBR) using the techniques and assumptions set out in Appendices III(i) and (ii).

2. The first step was to decide which companies were the most appropriate for the exercise. Firstly, company (8) was selected completely at random and this showed benefits to employees ranging from 10 - 12% of salary. Two other companies (37) and (47) were then examined and found to provide very poor returns of 1% - 2%. This indicated that there was likely to be a wide disparity between private benefits and so it was felt that the exercise should concentrate if possible on one type of scheme.

3. Fortunately closer examination revealed that approximately 50% of the companies and total employees covered by the FBR fell into one group, i.e. where the provident fund scheme provided a lump sum payment based on final salary and years of service and required no contributions from employees throughout their service.

4. It was therefore decided to pick two of the largest companies within this group, i.e. companies (10) and (40), which coincidentally also had identical benefits as being an average representative of the private sector.

5. The results of the comparisons between the Civil Service (contract gratuity) and the two private sector companies are set out below -

YEARS OF SERVICE	CURRENT VALUE OF BENEFITS AS % OF SALARY	
	CIVIL SERVICE CONTRACT GRATUITY	PROVIDENT FUND SCHEME COMPANIES (10) & (40)
15 YEARS	18.5%	9.8%
21 YEARS	18.0%	9.3%
27 YEARS	17.5%	8.8%
30 YEARS	17.3%	8.6%

6. It will be noted that the different time periods do not materially affect the gap between the civil service and the private sector.

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ADJUSTING THE VALUE OF  
HOUSING BENEFIT TO ALLOW FOR TAX

Rationale

- (a) Take as standard for comparison the civil service benefits of quarter/Private Tenancy Allowance (PTA) which are taxed on a notional basis;
- (b) no adjustment need to be made to rental allowance in the private sector because the same notional tax assessment method is employed;
- (c) since there is no restriction on how a cash allowance may be utilised as required in (a) and (b), it is not considered necessary to make adjustment to allow for the higher incidence of tax (note : the full value of cash allowance is subject to tax); and
- (d) an amount of notional tax - 10% of total assessable income X marginal tax rate - should therefore be added onto the housing loan package (note : housing loan at preferential interest rate is not taxable).

Examples

	<u>Government</u>	<u>Company A</u>	<u>Company B</u>
Total assessable income	<u>\$160,000</u>	<u>\$160,000</u>	<u>\$160,000</u>
Type of housing benefit	Qtr./PTA	Rental Allowance/ Cash Allowance	Housing Loan
Entitlement	\$82,000	\$82,000	\$82,000
Employees' contribution	\$12,000	-	-
Notional tax included	-	-	\$4,000*
Net value of housing benefit	<u>\$70,000</u> =====	<u>\$82,000</u> =====	<u>\$86,000</u> =====

\* Notional tax = 10% X total assessable income  
X marginal tax rate

= 10% X \$160,000 X 25%

APPENDIX V

Adjusting the Private Sector Total Package to  
take account of Leave, Hours of Work and Regular Overtime Work

(I) Company No. 10 in the PSRU 1983 Fringe Benefits Survey Report

Basic salary	\$2,000 p.m. (assumed)
Benefits other than Overtime Allowance	\$600 p.m. (assumed)
Conditioned Hours	46 hours per 6-day week
Overtime Allowance rate	$\frac{1}{100}$ of basic salary (assumed)
Regular overtime hours	1 1/2 hours per day
Leave	7 working days
Holiday falling on company working day	17 public holidays

(II) Conditioned Hours of civil service analogue : 200 hours

(III) Average civil service regular overtime hours : nil

(IV) The procedures for quantifying notional hours are :-

- (a) find the number of working days in a year by the following method : 52 X no. of working days in a week - total leave days - public holidays falling on the company's working day;
- (b) divide (a) by 12 to give the average number of working days in a month; and
- (c) multiply (b) by the average number of hours of work per day to give the average number of working hours in a month.

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(V) Calculations in respect of Company No. 10

$$\text{Notional working days p.m.} = \frac{52 \times 6 - 7 - 17}{12} = 24$$

$$\text{Notional working hours p.m.} = 24 \times \frac{46}{6} = 184$$

$$\text{Regular overtime hours p.m.} = 24 \times 1 \frac{1}{2} = 36$$

$$\text{Regular overtime allowance p.m.} = 36 \times \frac{1}{100} \times \$2,000 = \$720$$

Total package excluding regular overtime allowance

$$= \$2,000 + \$600$$

$$= \$2,600$$

Total package including regular overtime allowance

$$= \$2,600 + \$720$$

$$= \$3,320$$

Adjusted total package :

(i) if regular overtime allowance is included

$$\$3,320 \times \frac{200}{184 + 36} = \$3,018$$

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(ii) if regular overtime allowance is excluded

$$\$2,600 \times \frac{200}{184} = \$2,826$$

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APPENDIX VI

Grossing-up of Tax-free Utility Expenses  
borne by Employers

The formula is -

$$\text{assessed value of benefit} \times \frac{1}{1 - \text{marginal tax rate}}$$

Examples

<u>Total Assessable</u> <u>Income</u>	<u>Assessed Value</u> <u>of Benefit</u>	<u>Marginal Tax Rate</u> <u>(see Appendix VII)</u>	<u>Grossed-up Value</u> <u>of Benefit</u>
\$	\$		\$
60,000	2,000	0%	2,000
80,000	2,000	10%	2,222
90,000	2,000	15%	2,353
160,000	2,000	25%	2,667
240,000	2,000	15%	2,353

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Tax liability for a standard family  
*(i.e. a couple and two children)*

Total Assessable Income (\$)	Marginal Tax Rate	Tax on total Assessable Income (\$)
69,500*	nil	nil
69,501 - 79,500	5%	0 - 500
79,501 - 89,500	10%	500 - 1,500
89,501 - 99,500	15%	1,500 - 3,000
99,501 - 109,500	20%	3,000 - 5,000
109,501 - 119,500	25%	5,000 - 7,500
119,501 - 129,500		7,500 - 10,000
129,501 - 139,500		10,000 - 12,500
139,501 - 149,500		12,500 - 15,000
149,501 - 159,500		15,000 - 17,500
159,501 - 169,500		17,500 - 20,000
169,501 - 179,500		20,000 - 22,500
179,501 - 189,500		22,500 - 25,000
189,501 - 199,500		25,000 - 27,500
199,501 - 209,500		27,500 - 30,000
209,501 - 219,500		30,000 - 32,500
219,501 - 223,750		32,500 - 33,562.5
Over 223,750 #	15%	

\* Personal allowances

	\$
Couple	56,000
First Child	8,000
Second Child	5,500
	<u>\$69,500</u>
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# Breakeven point for application of standard rate

$$\$223,750 \times 15\% = \$33,562.5$$

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