

Appendix 4

Report on modelling assumptions from the Institute of Actuaries of Australia



Institute of Actuaries of Australia

**Report
to the
Senate Select Committee
on
Superannuation**

SUPERANNUATION AND STANDARDS OF LIVING IN RETIREMENT

Modelling Assumptions

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EXECUTIVE SUMMARY

1. The Senate Select Committee on Superannuation is currently conducting an inquiry into “the adequacy of the tax arrangements for superannuation and related policy to address the retirement income and aged and health care needs of Australians”. The Committee, in its letter of 22 August 2002, has requested the Institute of Actuaries of Australia (IAAust) to assist in assessing the relative strengths and merits of the alternative modelling approaches used by ASFA and Treasury in their submissions to this inquiry. The IAAust has also been requested to provide the Committee with its views on the validity of the assumptions used by ASFA and Treasury and the most appropriate assumptions to be used for such modelling.
2. The attached report provides the IAAust’s views on the issues raised in the Committee’s request, based on a detailed review of both submissions including discussions with representatives of both ASFA and Treasury.
3. The IAAust is of the view that, when assessing the adequacy of retirement incomes generated by the Superannuation Guarantee (SG) system and the age pension, it is most appropriate to consider the level of retirement income relative to the level of earnings in the period immediately prior to retirement. This measure is often referred to as the replacement rate and, as the Committee will be aware, is a common target used by those in the superannuation and financial planning industries when advising individuals regarding their income needs in retirement. Replacement rates are more robust and less subject to distortion by the choice of modelling approach than dollar levels of retirement income.
4. The net of tax retirement replacement rates from the Treasury and ASFA models are quite close. For example, the net replacement rates for a single male retiring on AWOTE at age 65 after a 30-year career and receiving a pension benefit are shown in the table below.

Model	Net retirement replacement rates ¹	Age pension component	Superannuation pension component
Treasury	60%	35%	25%
ASFA	57%	32%	25%

5. Two points to note in relation to the above results are that:
 - (i) over half the net replacement rate is provided by the age pension; and
 - (ii) in this example, and others considered by ASFA and Treasury, the retiree continues to be entitled to very close to the full age pension.

¹ The net retirement replacement rate is defined as the expenditure in the first year of retirement as a percentage of the after tax income in the prior year

This confirms the view previously expressed by the IAAust (and others) regarding the need to address the interaction between the superannuation and age pension arrangements to achieve a financially sustainable retirement income system that also meets reasonable retirement income expectations.

6. The key reasons for the differences between the net replacement rates from the ASFA and Treasury modelling are detailed in Table 2 and discussed in this report. Essentially the differences in net replacement rates arise from variations in the more detailed modelling assumptions that underpin the projected results.
7. The IAAust has estimated net replacement rates using the ASFA model and what we believe is a reasonable range of assumptions within the current economic environment. These assumptions are:

Recommended IAAust Assumptions for Projections		
	Best Estimate Assumption	Sensitivity – lower & higher
CPI	2.5%	No change
Investment earnings before retirement	7.0% per annum after fees and tax	Low 6.0% per annum High 8.0% per annum
Admin and insurance expenses before retirement	\$2.00 per week indexed	No change (as investment return has fee adjustment also)
Wage Inflation	3.5% per annum	Low 4% per annum High 3% per annum
Effective conversion of lump sum to 1 st year pension	5.5%	Low 5% High 6%

8. The projections using this range of assumptions and the example of a male retiring on AWOTE at age 65 after 30 years are set out in Table 7 and result in estimated net retirement replacement rates that vary between 52% and 70%. The range of net replacement rates is necessarily broad due to the variability of outcomes to which individuals are subject, and which are reflected in the range of assumptions used.
9. Variability of outcomes for individuals is a major issue in its own right, and some of the factors that contribute to the variability of retirement incomes are outlined in Appendix B. In addition to the variability of private retirement incomes there is also a large degree of variability in age pension outcomes depending on individual circumstances. Both of these aspects create major problems in projections of total retirement incomes, and hence the assessment of the adequacy of outcomes from the SG and age pension arrangements.

10. The ANOP research undertaken by ASFA and referred to in the Committee's letter of 22 August 2002 indicated that around 70% of people desire retirement incomes in excess of \$30,000 per annum. For someone on average weekly ordinary time earnings (AWOTE), that would represent a net replacement rate of 88%. This level of net replacement rate is higher than generally accepted perceptions of appropriate net retirement income targets, which would be closer to 70% or 80% for those on "average" levels of earnings. (Gross of tax replacement rates of 60% to 70% would often be used.) A higher level of net replacement rate would be appropriate for those on lower earning levels.
11. As noted by the Committee, there is a significant difference in the current dollar levels of retirement incomes indicated in the submissions from ASFA and Treasury - \$19,322 in the case of ASFA for the example referred to above compared to Treasury's figure of \$28,308.
12. The reason for this large apparent difference is because Treasury uses an explicit price deflator (CPI) to discount its projected retirement benefits into current (2001/02) dollars. ASFA, on the other hand, implicitly uses a wages deflator (AWOTE). Treasury's figure for the contribution of the age pension to total retirement income is inflated by the assumed difference between increases in AWOTE and CPI over 30 years. That is, the Treasury model assumes that the current maximum age pension will increase in real terms over the next 30 years from \$10,966 to around \$16,800 (expressed in current dollars). If a wages deflator rather than price deflator is applied to the Treasury calculations, the current dollar level of retirement income for this example case reduces from \$28,308 to \$18,348 and would reflect the current maximum level of the age pension.
13. As indicated above, the IAAust view is that adequacy of retirement income is best viewed as a relative concept, comparing retirement income to living standards and earnings at the time of retirement. The alternative approach of viewing adequacy as an absolute concept based on current living standards projected 30 or more years ahead is problematic because of the general change (usually an increase) in living standards that occurs over such periods. Increased community living standards lead to expectations of increased retirement incomes to maintain adequacy.
14. The use of a CPI deflator (as has been used in the Treasury model) will produce results that are consistent with other Government projections. However other Government projections are usually undertaken over relatively short time frames (less than five years or so). For longer-term projections, such as are required when assessing adequacy of retirement incomes, IAAust believes it is more consistent to use an AWOTE deflator to ensure comparability with living standards at the time of retirement.

INTRODUCTION

The Senate Select Committee on Superannuation is currently conducting an inquiry into “the adequacy of the tax arrangements for superannuation and related policy to address the retirement income and aged and health care needs of Australians”. The Committee, in its letter of 22 August 2002, has requested the Institute of Actuaries of Australia (IAAust) to assist in assessing the relative strengths and merits of the alternative modelling approaches used by ASFA and Treasury in their submissions to this inquiry. The IAAust has also been requested to provide the Committee with its views on the validity of the assumptions used by ASFA and Treasury and the most appropriate assumptions to be used for such modelling.

The attached report provides the IAAust’s views on the issues raised in the Committee’s request, based on a detailed review of both submissions including discussions with representatives of both ASFA and Treasury.

Differences in modelling approaches

There are two major areas of difference between the financial projections in the ASFA and Treasury submissions. The first area is the set of detailed modelling assumptions that each adopts, either explicitly or implicitly. While many of the individual assumptions used in the ASFA and Treasury models differ, the overall impact of these differences on the projected net replacement rates is not large. The impact on the estimated dollar levels of retirement income is more significant.

The second, and more significant, area of difference between the ASFA and Treasury models is the basis of deflating the results into current dollars. Treasury uses an explicit price deflator, the Consumer Price Index (CPI), while ASFA uses an implicit wages or earnings deflator, Average Weekly Ordinary Time Earnings (AWOTE). It is this difference that accounts for most of the variation between the results from the alternative models when they are expressed in current dollars.

The Committee’s letter of 22 August 2002 highlighted the example that the retirement income in the first year for a single male retiring at age 65 after 30 years of Superannuation Guarantee contributions at 9% would be \$28,308 using the Treasury model and \$19,000 using the ASFA model. Both of these figures are in 2001/02 dollars. The Treasury figures assume earnings of AWOTE (currently \$44,746) whereas the ASFA figures were based on pre-retirement earnings of \$40,000 (as given in evidence by their CEO). Using the ASFA model that has been provided to us for this scenario, but with pre-retirement earnings of \$44,746 rather than \$40,000, produces a first year retirement income of \$19,322.

The difference in results is quite significant given that, *prima facie*, the two models could be expected to give similar answers. The subsequent sections of this report explain in further detail the key reasons for the differences in results from the ASFA and Treasury models. We have also included the IAAust’s suggestions regarding appropriate assumptions in the current economic environment that are consistent with the focus of the Committee’s terms of reference regarding adequacy of retirement income.

For simplicity we have focussed in this report on the projected outcome for the example cited in Senator Watson’s letter of 22 August 2002 and referred to above. This example is based on a male retiring at age 65 after 30 years of Superannuation Guarantee (SG) contributions of 9%. However, it is very important to note that there is a high degree of inherent variability in the range of retirement incomes that individuals will receive, both in terms of absolute dollars and net replacement rates. This issue was highlighted in the IAAust submission to the Committee, an extract of which has been reproduced in Appendix B.

Current values of projected retirement incomes

The most significant difference in the modelling approach and assumptions between the ASFA and Treasury submissions is how each party chooses to present its results in current dollar (2001/02) terms.

Treasury has a complex model to project future cash flows (incomes, pensions, superannuation contributions and benefits, taxes, etc) for 30 or 40 years and then discounts the results to current dollars using the Consumer Price Index (CPI) as the deflator. This is consistent with other Government analyses and reports, although most such projections are for much shorter periods of no more than 5 years. Because incomes are assumed to increase at a faster rate than prices, the approach in the Treasury model capitalises 30 or 40 years of real increases (that is, increases in excess of the CPI) in pensions and retirement incomes into the current dollar result.

This means that Treasury's figure for the contribution of the age pension to total retirement income is inflated by the assumed difference between increases in AWOTE and CPI over 30 years. That is, the Treasury model assumes that the current maximum age pension will increase in real terms over the next 30 years from \$10,966 to around \$16,800 in current dollars.

ASFA has a simpler model that uses a hypothetical reconstruction of the last 30 or 40 years as a proxy for future outcomes. This avoids the need to project future cash flows and then discount the results. This approach is broadly equivalent to projecting all future cash flows based on a suitable index such as AWOTE and then discounting the results by the same index. This avoids capitalising any real increases in pensions and retirement incomes into the current dollar result.

The following table illustrates the different approach to constructing current dollar results:

Table 1		
Components of projected retirement incomes		
	Treasury	ASFA
	\$	\$
Age pension	16,717 ²	10,851
Pharmaceutical allowance	0	151
Superannuation pension	14,558	8,320
Tax	(2,967)	0
Total	28,308	19,322

The two results can be roughly reconciled in arithmetic terms by replacing the CPI deflator (2.5% per annum) with an AWOTE deflator (4.0% per annum) in Treasury's result or vice versa for the ASFA result:

$\$28,308 \times \{CPI \text{ deflator } (210\%) / AWOTE \text{ deflator } (324\%)\} = \$18,348$, which is close to ASFA's figure of \$19,322. The remaining variance is readily explained by the different projection assumptions, as outlined later in this report.

Further comments on the alternative approaches to discounting retirement incomes to current dollars are included in Appendix A.

In both cases, the age pension component represents 99% of the maximum rate of age pension (either the current maximum pension for the ASFA model or the adjusted maximum pension for the Treasury model, as explained above and in the footnote).

One implication of this is that, for this example person and scenario, there is almost no impact on reducing Government outlays on age pensions even after 30 years of SG contributions at 9%. Similar results arise for other examples and scenarios. This confirms the view previously expressed by the IAAust (and others) regarding the need to address the interaction between the superannuation and age pension arrangements to achieve a financially sustainable retirement income system that also meets reasonable retirement income expectations.

² Treasury includes an age pension component of \$16,717 compared to the current maximum age pension of \$10,966 because age pensions are expected to increase by 55% over the next 30 years in real terms.

DIFFERENCES IN ASSUMPTIONS

The other area of difference between the ASFA and Treasury modelling is in the detailed assumptions used. The following table summarises the main assumptions used in the Treasury and ASFA models:

Assumption	Treasury	ASFA
Investment earnings before retirement	7.0% per annum after fees but before tax	7.0% per annum after fees and tax (Note 1)
Investment earnings after retirement	6.0% per annum after fees	No explicit assumption
Admin and insurance expenses before retirement	\$2.00 per week not indexed	Nil
Expenses of purchasing life pension	4%	Nil
Wage Inflation	4.0%	3.75%
Effective conversion of lump sum to 1 st year pension	6.47%	5.0%

Note 1 The ASFA investment return is 7.0% per annum although the CEO actually advised “about 6.0%” to the Committee.

Both sets of assumptions are within the range that we would expect given recent and expected future experience. The Treasury model is more sophisticated and uses a greater number of explicit assumptions than the ASFA model. The difference between the assumptions that has the most significant effect on the results from the model is the approach to converting a lump sum at retirement into an income stream.

ASFA assumes that a \$100,000 lump sum invested in a lifetime annuity will give a first year annuity payment of \$5,000 per annum, which will be indexed with CPI. ASFA advises that this is equivalent to the going rate in the market for immediate annuities.

Treasury, on the other hand, assume that the individual will be able to purchase a lifetime annuity from a life office based on a 6% per annum future earning rate, the average expectation of life for that age and with 4% of the lump sum being used for expenses. The Treasury approach gives a first year retirement income of \$6,470 for a \$100,000 lump sum.

The current immediate annuity market gives results between the two approaches. For example, one competitive life office quotes \$5,960 as the first year income for a single male at age 65 and \$5,212 for a reversion to a surviving spouse from a \$100,000 lump sum with no commission payable.

The use of a CPI indexed annuity from a life office is a conservative basis on which to convert a lump sum to an income stream. In practice many retirees will purchase an allocated pension rather than a conventional lifetime annuity.

The impact of the different assumptions is shown below, based on varying each of the ASFA assumptions to reflect the corresponding Treasury assumption and showing the impact on the ASFA current dollar retirement expenditure and the first year net replacement rate.

	Assumption applied to ASFA model	Impact on ASFA results	
		Retirement Income	Net Replacement Rate
Baseline results		\$19,322	56.4%
Investment earnings before retirement	6.51% per annum after fees and after 7% tax	-\$611	-1.8%
Admin and insurance expenses before retirement	\$2.00 per week not indexed	-\$491	-1.4%
Wage Inflation	4.0% per annum	-\$328	-1.0%
Effective conversion of lump sum to 1 st year pension	6.47%	+\$2,446	+7.1%
Overall impact		\$20,010	+2.0%

DIFFERENCE IN INDEXATION OF TAX SCALES

Treasury calculates tax on their projected figures in 2032 using assumed tax thresholds in that year. Over the next 30 years, Treasury indexes the tax scales at CPI while assuming that average earnings increase at a higher rate. This means that individuals who remain on AWOTE are pushed into higher tax brackets. For example, the tax currently payable (including Medicare levy) by someone on AWOTE is 23.4% of earnings whereas in the Treasury submission the tax payable by someone on AWOTE in 2032 is 29.8% of earnings. It seems unlikely that the effective rate of tax for someone on AWOTE would increase over the next 30 years by more than one-quarter. This, however, is the outcome from indexing tax scales over a long period at a lower rate than indexing average earnings.

The Treasury model indexes the Reasonable Benefit Limits and the tax-free thresholds, as well as the income tax scales. However it does not index the Senior Australian Tax Offset at all over the next 30 years. According to a Treasury official, as reported in Hansard for 19 July 2002, the Senior Australian Tax Offset ceases to have an effect after 15 or so years. -

The ASFA model, on the other hand, assumes that the person retires in 2002 and they have used the current tax scales and thresholds. Therefore, they have allowed for the actual tax payable in the current environment including the allowance for the Senior Australian Tax Offset.

Treasury has reviewed the impact of their method of indexation of tax scales and concludes that use of AWOTE indexation in tax scales, but not the Senior Australian Tax Offset, would not have a significant impact on replacement rates as the tax scales apply to income before and after retirement. Indexation by AWOTE would, however, produce a higher absolute level of retirement expenditure (\$30,806 compared to the \$28,308 figure for the first year shown above).

Assessing the adequacy of projected retirement incomes

The IAAust is of the view that, when assessing the adequacy of retirement incomes generated by the SG system and the age pension, it is most appropriate to consider the level of retirement income relative to the level of earnings in the period immediately prior to retirement. As the Committee will be aware, this measure (the replacement rate) is a common target used by those in the superannuation and financial planning industries when advising individuals regarding their income needs in retirement.

The Assistant Treasurer also suggested in her media release of 5 August 2002 that ideally the focus should be on replacement rates rather than specific dollar targets. Replacement rates are more robust and less subject to distortion by the choice of modelling approach than dollar levels of retirement income.

A particular dollar level of retirement income is based on a single scenario and is less readily able to be translated to a more general target level of retirement income. For example, the figures referred to in the Committee's letter (of \$28,308 from the Treasury model and \$19,000 from the ASFA model) are based on a single set of assumptions. They are also only relevant for the example of a male retiring on a particular level of earnings, at age 65, after a 30-year projection period. While there will also be variability of net replacement rates based on individual circumstances, the variability is likely to be less than is the case for dollar outcomes.

The net of tax retirement replacement rates from the Treasury and ASFA models are quite close. For example, the net replacement rates for a single male retiring on AWOTE at age 65 after a 30-year career and receiving a pension benefit are shown in the table below.

Model	Net retirement replacement rates ³	Age pension component	Superannuation pension component
Treasury	60%	35%	25%
ASFA	57%	32%	25%

One point note in relation to the above results is that over half the net replacement rate is provided by the age pension.

The Treasury model calculates net replacement rates by comparing first year retirement expenditure (assumed equal to both income and capital withdrawals) with final year after tax income. Treasury also compare average expenditure over the expected period in retirement with final year after tax income. We have focused in this report on the results based on the first retirement year figure as that allows comparisons with ASFA's results and is the more traditional measure. When calculating replacement rates, Treasury is comparing pre and post retirement after tax incomes and expenditure, both in 2032 dollars, and ASFA is making the same comparison using 2002 dollars.

There is a valid concern that many people will relate more closely to a specific dollar target than a net replacement rate. The Committee has indicated that the desired retirement income level of \$30,000 suggested by the ANOP research undertaken for ASFA may be useful in identifying an appropriate retirement income target. Effective communication of a dollar retirement income target may encourage workers to check whether their expected retirement income falls short of this target and, if so, take steps to close the gap.

If a target retirement income of \$30,000 is used then, based on the Treasury modelling result, workers earning around AWOTE may conclude that there is only a small gap to be closed and that they can rely on higher than expected investment performance to achieve the desired level of benefits. However based on the ASFA modelling result, those same workers may conclude that additional contributions are necessary to achieve the desired level of benefits.

Hence, reconciling the two modelling results in terms of their ability to be communicated clearly and effectively to the broader community and their suitability for assessing achievement of an appropriate retirement income target is important. If a dollar target is to be adopted it is very important to ensure that any modelling approach reflects the objective of the exercise and allows those relying on the results of the modelling to draw appropriate conclusions regarding retirement income adequacy.

³ The net retirement replacement rate is defined as the expenditure in the first year of retirement as a percentage of the after tax income in the prior year

The dollar level of retirement income generated by the Treasury model relies upon future real increases in the age pension to help meet the retirement income target (adjusted by CPI increases). The result is, however, only applicable to people retiring in 2032 and beyond, as it requires 30 years of real increases in age pension above CPI increases. Under the ASFA modelling approach, future real increases in the age pension are effectively assumed to enable workers to maintain their relative standard of living compared to the broader community.

As indicated above, the IAAust view is that adequacy of retirement income is best viewed as a relative concept, comparing retirement income to living standards and earnings at the time of retirement. The alternative approach of viewing adequacy as an absolute concept based on current living standards projected 30 or more years ahead is problematic because of the general change (usually an increase) in living standards that occurs over such periods. Increased community living standards lead to expectations of increased retirement incomes to maintain adequacy.

The use of a CPI deflator (as has been used in the Treasury model) will produce results that are consistent with other Government projections. However these are usually undertaken over relatively short time frames (less than five years or so). For longer-term projections, such as are required when assessing adequacy of retirement incomes, the IAAust believes it is more consistent to use an AWOTE deflator to ensure comparability with living standards at the time of retirement.

RECOMMENDED IAAUST ASSUMPTIONS

In response to your request for the IAAust's views on the most appropriate assumptions, we have examined the experience of fund investment returns, average weekly earnings and CPI changes over the past 40 years. We have also briefly examined the market for annuities as discussed above.

Averaging period	Average Investment Return	Average real wage increases	Average CPI Increase	Average real return over CPI	Average real wage increases over CPI
5 years	10.3%	3.5%	2.6%	7.4%	0.9%
10 years	11.4%	4.3%	3.9%	7.3%	0.4%
15 years	13.2%	5.6%	5.2%	7.5%	0.3%
20 years	14.0%	7.0%	6.4%	7.1%	0.5%
30 years	12.1%	8.4%	6.9%	4.8%	1.4%

Source – ABS website and ASFA Superfunds magazine adjusted for the expected experience to the year to June 2002 based on latest published results.

Table 6 below sets out suggested best estimate assumptions, and also a range of reasonable assumptions to allow the sensitivity of the projections to variations in particular assumptions to be assessed. The suggested assumptions are not unique and alternative sets of assumptions may also be reasonable. We have constructed the set of assumptions to provide a basis that is realistic, internally consistent and focussed on the objective of helping determine adequacy of expected retirement benefits rather than consistency with other government forecasts.

Our rationale for the key assumptions is:

- The CPI estimate of 2.5% per annum is based on the midpoint of the Reserve Bank's target range of 2% to 3% per annum
- Over the last 40 years, average real investment returns (net of tax where applicable and wholesale fees) have ranged between 5% and 7% per annum
- Retail fee levels would generally be at least 1% per annum above wholesale levels
- A reasonable range for the assumed level of investment earnings before retirement after fees and tax would hence be 6.0% to 8.0% per annum, with a best estimate of 7.0%
- Over the last 30 years, average real wage increases have generally ranged from 0.5% to 1.0% per annum and only exceeded 1.0% over 30 to 40 years
- A reasonable range for the assumed level of wage increases would be 3% to 4% per annum, with a best estimate of 3.5%
- Allowing for commission payments and the spread of market prices for annuities, a first year conversion factor of 5% to 6% is appropriate, with a best estimate of 5.5%

Recommended IAAust Assumptions for Projections		
	Best Estimate Assumption	Sensitivity – lower & higher
CPI	2.5%	No change
Investment earnings before retirement	7.0% per annum after fees and tax	Low 6.0% per annum High 8.0% per annum
Admin and insurance expenses before retirement	\$2.00 per week indexed	No change (as investment return has fee adjustment also)
Wage Inflation	3.5% per annum	Low 4% per annum High 3% per annum
Effective conversion of lump sum to 1 st year pension	5.5%	Low 5% High 6%

Results using IAAust Assumptions

Using the IAAust assumptions in Table 6 with the ASFA model gives the following results:

Table 7		
IAAust Results and Sensitivity Analysis		
Assumption applied to ASFA model	Impact on ASFA results	
	Retirement Income & Net Replacement Rate	
ASFA Baseline results	\$19,322	56.4%
IAAust best estimate assumptions	\$20,290	59.2%
IAAust lower estimate assumptions	\$17,687	51.6%
IAAust higher estimate assumptions	\$23,971	69.9%

These results show the sensitivity of the forecasts to the selection of assumptions. Adequacy of retirement income will be affected significantly by each of the factors considered: real investment performance (net of tax and management fees), real wage increases and the basis by which retirees can convert lump sums to income streams either via the annuity market or via substitute products.

Additional variability of retirement incomes will also arise due to different individual circumstances, such as contribution periods and levels, wages or earning levels, retirement ages and so on. We have not considered these factors in any detail in this report, however they are very important when considering appropriate adequacy targets.

For the particular example used in this report (i.e. a single male retiring on AWOTE at age 65, after 30 years of 9% SG contributions), using ASFA's model and the IAAust's suggested assumptions gives a range of current dollar retirement incomes between \$17,687 and \$23,971, with a best estimate of \$20,290. The corresponding first year net replacement rates are 52%, 70% and 59% respectively.

The ANOP research referred to in your letter found that 70% of respondents indicated that an income of at least \$30,000 per annum would be necessary for most people in retirement. Your Committee considered that this figure might be useful in identifying an appropriate retirement income target for future modelling.

It should be noted, however that a retirement income target of \$30,000 per annum would represent a net replacement rate of 88% for someone on average weekly ordinary time earnings (AWOTE). This level of net replacement rate is higher than generally accepted perceptions of appropriate retirement income targets, which would be closer to 70% or 80% for those on “average” levels of earnings. (Gross of tax replacement rates of 60% or 70% would often be used.) A higher level of net replacement rate would be appropriate for those on lower earning levels.

The range of projected results, based on the IAAust’s assumptions, of between \$17,687 and \$23,971 gives a clear indication that additional contributions may be required to achieve this target unless unexpected high levels of investment performance are achieved.

The Treasury projection of a first year retirement expenditure of \$28,308 is not comparable with the ANOP research finding. A more appropriate comparison would be to consider the figure of \$28,308 in the context of expected real AWOTE in 2032 of \$67,615. The corresponding net replacement rate is 60%, which is well short of the 88% target referred to above (based on a target retirement income of \$30,000).

APPENDIX A

Discounting – CPI or AWOTE?

Treasury assume that the Superannuation Guarantee contributions commence in 2002 and continue for 30 years until 2032. In their projection they assume CPI increases of 2.5% per annum, future AWOTE increases of 4.0% per annum, future age pensions are indexed with increases in AWOTE rate and future tax scales are indexed with increases in the CPI. Treasury express their results in 2001/02 dollars by discounting the 2032 year results by the CPI rate or 2.5% per annum.

ASFA, on the other hand, assumes that contributions have been made at the 9% Superannuation Guarantee contribution rate for the last 30 years and that the individual is retiring in 2002. Earnings and contribution figures for the earlier years are discounted back in line with the assumed growth in wages over that period ie at the AWOTE assumption not the CPI assumption.

Traditionally average increases in AWOTE have been greater than CPI by 0.5% to 1.5% per annum, as shown in Table 5 of this report. If the Treasury 1st year retirement income of \$28,308 had been discounted using the Treasury AWOTE assumption of 4% per annum, rather than the CPI assumption of 2.5% per annum, and all other items were unaltered, the 1st year retirement income reduces to \$18,265. If, on the other hand, the ASFA AWOTE assumption of 3.75% per annum was used for discounting in the Treasury model, then the 1st year figure would reduce to \$19,678.

Treasury and ASFA comments on the appropriate rate to discount future dollars are contained in the following papers:

- i) Treasury submission,
- ii) ASFA submission,
- iii) Supplementary ASFA submission,
- iv) Further Supplementary ASFA submission,
- v) Hansard Proof for 19 July 2002 (Treasury statement and questioning),
- vi) Hansard Proof for 8 August 2002 (ASFA statement and questioning),
- vii) Press Release from Senator Coonan 5 August 2002 headed "Minister rejects ASFA's claims"
- viii) Treasury e-mail "Comparison of RIM methodology of projecting the retirement income for hypothetical individuals with that used by ASFA" 5 September 2002

The arguments presented in the above papers are summarised below:

(a) *By Treasury*

- It is appropriate to use CPI as it reflects actual spending power or what people can afford to buy with their retirement income ((i), (v) and (vii) above).
- Discounting by AWE is misleading as it does not capture the real growth in the value of the age pension over time, which is an important feature of government policy (vii).

- The ASFA approach of using AWE discounting is non-standard (vii): Deflating by the CPI "... is consistent with most Government reports (such as that on the New Tax System and the former Labor Government's *Saving for our Future*) which measure private living standards in terms of real spending power. This is also consistent with research reports which deal with trends in the standards of living of the aged, such as NATSEM's recent report *Trends in the Incomes and Assets of Older Australians*." (viii)

(b) ` By ASFA

- Individuals will judge their living standards and adequacy of retirement incomes at the time they retire by community standards at that time rather than at the time they started contributing to superannuation. Current Age Pensioners would not be happy with an Age Pension about 40% less than what it is now, on the basis that a pension set at that level would be the same in real terms after adjusting for price inflation as the Age Pension in 1960 ((ii) and (iii))
- The Treasury measures inflate both the absolute and the relative levels of retirement income.
- The use of an AWE deflator is the standard approach of researchers, and it is Treasury which is the odd one out (iv).

Comparison between the Treasury and ASFA figures

Both figures purport to be the retirement income in 2001/02 dollars for a single male age 65 who has been receiving 9% Superannuation Guarantee contributions for 30 years. The Treasury figure is made up as follows:

	\$
Age pension	16,717 (98.7% of adjusted age pension)
Life pension from Super account	<u>14,558</u>
Total before tax	31,275
Less tax	<u>2,966</u>
Total after tax	28,309

In 2001/02 the total age pension used in the submission is \$10,966 although the Treasury retirement income shown above from a part age pension is \$16,717. This result is because the Treasury model inflates the current age pension for 30 years at 4% and discounts the result back to 2001/02 at 2.5%.

The equivalent ASFA figures are

	\$
Age pension	11,002 (99.0% of full age pension)
Life pension from Super account	<u>8,320</u>
Total before tax	19,322
Less tax	<u>Nil</u>
Total after tax	19,322

APPENDIX B

Adequacy of SG Contributions

(Reproduced from the IAAust submission to the Senate Select Committee dated June 2002)

In July 2002 the Superannuation Guarantee Contribution reaches 9% of salaries and wages. There is debate about whether that is sufficient to provide a reasonable level of retirement benefit.

In practice there are many variables that determine a person's total retirement income. Contributions of 9% of salary might be sufficient for some, but totally inadequate or too much for others. It is not possible to set a single optimum SG contribution rate that will provide an appropriate or adequate retirement income for the majority of retirees. Many factors affecting the individual will influence their actual and desired level of retirement income, including:

- the period over which contributions are made (which is reduced for time out of the work force);
- the number of dependents;
- the impact of part time work;
- retirement age;
- future longevity in retirement (which is higher for females);
- likely fund earnings;
- the impact of fees and taxes on benefits;
- the capacity to make additional voluntary contributions;
- financial support outside superannuation from personal wealth or government benefits;
- the structure of retirement products; and
- expectations of living standards in retirement.

It is fair to conclude that a 9% SG contribution alone, even over a lengthy career, will *not* provide most people with an income in retirement that will meet their expectations. Additionally, based on current retirement income policies and eligibility rules for the Age Pension, most Australian retirees today *and in the future* will receive some or all of their retirement benefit through the Age Pension.