

October 2010

Superannuation Savings Gap at June 2009

Prepared for the
Financial Services Council

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1. Executive Summary

1.1 Introduction

Since 2003, the Financial Services Council has engaged Rice Warner Actuaries to estimate the *Retirement Savings Gap*. This figure is the value for the working population of the shortfall they will have in building an adequate (reasonable) retirement benefit.

The Financial Services Council has now requested that Rice Warner update its report on the *Retirement Savings Gap* (RSG) to reflect the situation following the Global Financial Crisis (GFC) and its affect on retirement savings. This report sets out the results based on figures for the year ending 30 June 2009.

The Retirement Savings Gap provides a snapshot of Australia's progress as a nation towards funding a comfortable retirement. Trends over time will show whether the relative position is improving.

The Government has an important role to play in encouraging Australians to save for their retirement. The financial services industry has an important role to play in educating Australians about retirement matters and assisting individuals to improve their personal situations. Success can be measured through a reduction in the gap over time.

1.2 Results

The results in this report do not take the Government's May 2010 announcement that it will increase the Superannuation Guarantee contribution rate from 9 to 12 per cent into account. However, we do outline the impact that increasing the Superannuation Guarantee will have on reducing the Retirement Savings Gap.

The findings of this report demonstrate the significance of increasing the Superannuation Guarantee and national savings despite the difficulty of navigating this reform through Parliament with a minority Government.

Our calculations show that compulsory contributions of 9 per cent are inadequate to provide the population with their expectations of a comfortable living standard in retirement. As most of today's working population will receive a part or full Age Pension when they retire, the gap will be partly closed by the level of government support.

We have used a target benefit (including any entitlement to the Age Pension) of 62.5% of earnings at retirement for people earning between 50% and 200% of average wages. Below 50%, people receive a high replacement rate from the Age Pension; above 200% (about \$120,000), people generally have other assets or income to support their retirement lifestyle.

We have assumed that people will need to save enough to pay the target benefit up to their life expectancy at the start of their retirement. In fact, 50% of retirees will outlive this period and will then revert to a full Age Pension unless they have other income or an even higher superannuation benefit.

We estimate that there is a deficit of some \$897 billion at 30 June 2009. This is approximately 9 months GDP¹. In our previous report at 30 June 2008 we had estimated the Savings Gap to be \$695 billion.

¹ GDP was approximately \$1.2 trillion in the 2008-09 financial year.

We have estimated that a 1 per cent increase in employer contributions results in a reduction in the Retirement Savings Gap (allowing for the Age Pension) of just under \$79 billion or approximately 9 per cent of the deficit. Therefore, the additional three per cent increase in the Superannuation Guarantee proposed by the Government could potentially reduce the deficit by up to 27 per cent for the current working cohort (assuming no substitution of voluntary contributions for increased compulsory contributions).

It is clear that the increased Superannuation Guarantee will help to significantly reduce the Retirement Savings Gap. However, it is not a panacea for the current working cohort since it will not eliminate the total Retirement Savings Gap. We still expect that voluntary contributions will remain critical if more Australians are to save for an adequate retirement income.

We estimate that voluntary contributions more than double as people age. Accordingly, incentives to encourage greater levels of voluntary contributions will remain an important policy lever. In this respect, the Government's May 2010 announcement that it would increase the concessional contribution caps for Australians aged above 50 with a superannuation balance of less than \$500,000 will provide important flexibility and incentive for older Australians to make greater voluntary concessional contributions towards funding their retirement.

The Savings Gap figures are lump sum amounts, expressed in today's dollars. In the report, we also express them as additional regular savings (over and above current contribution levels), which need to be made to ensure that current working Australians have a reasonable chance of retiring with the set target.

The savings gap is higher in nominal terms than the \$695 billion headline number from our previous work, partly due to an increase in the population. The revised Savings Gap is approximately \$87,900 per person in the selected population (persons aged 25 - 64 earning between 50% and 200% of average wages, refer to section 4.2) which represents an increase of about \$14,900 per person over the last year.

The table below shows that the increase in the Gap reflects a complex relationship between (refer to Section 6 for greater detail):

- Changes in the underlying population mortality;
- Increases in earnings;
- Changes in the population income distribution;
- Changes in the underlying population demographics;
- Changes in the estimate of pre-retirement savings; and
- Changes in assumptions in the model to reflect changes to the underlying economic variables.

Table 1. Analysis of Difference of Retirement Savings Gap

	\$ billion
Retirement Savings Gap Estimate, 30/6/2008	695
Effect of mortality table change	160
Effect of average wage increases	143
Effect of income distribution changes	34
Effect of demographic changes, movement in account balances and investment earnings	(135)
Retirement Savings Gap Estimate, 30/6/2009	897

1.3 Comparison with Previous Results

The results of the previous Retirement Savings Gap reports are detailed in the table below. The results are not directly comparable because of changes in assumptions and data over time. However, the upward trend on a per capita basis indicates that Australians are not saving enough for retirement. The continuation of inadequate funding levels will produce an ongoing increase in the Retirement Savings Gap over time.

Table 2. Results of the Rice Warner Savings Gap

Data at	Retirement Savings Gap		
	Males	Females	Total
December 2002	n/a	n/a	375
June 2004	237	216	452
June 2008	358	337	695
June 2009	479	418	897

1.4 Additional Contributions

The average contributions currently paid in the industry are set out in Table 11. This is 14.0% for employers and 3.2% for members. Section 4.4 explains the basis for these apparently high contribution rates.

The table below shows the additional contribution required to offset the Retirement Savings Gap over the future lifetime of each age/sex cohort.

This is shown both as an average additional contribution (above the assumed average 14.0% employer and 3.2% member contribution) and as a contribution in addition to the 9% Superannuation Guarantee Rate. Hence, females in the 45 to 49 age bracket collectively need to pay an additional after tax contribution of 7.2%. If they made that in addition to the current employer and member contributions, the total contribution would be 22.6% of salary (which is an additional rate of 13.6% above the SGC).

Table 3. Required Additional Contribution - 30 June 2009

Age	Males		Females	
	Average* (%)	Above SG (%)	Average* (%)	Above SG (%)
25-29	4.4	10.8	5.1	11.5
30-34	5.1	11.4	4.3	10.7
35-39	5.5	11.9	3.7	10.1
40-44	5.9	12.3	4.8	11.1
45-49	6.1	12.5	7.2	13.6
50-54	7.2	13.6	7.5	13.8
55-59	10.6	16.9	8.2	14.6
60-64	18.8	25.2	12.4	18.8

* Additional contribution required in excess of an assumed average 14.0% employer contribution and 3.2% member contribution.

1.5 Main Assumptions

We have made a number of assumptions in calculating the Retirement Savings Gap, and these should be considered carefully. The full range of assumptions is detailed in the report. Section 6 discusses the differences from the previous report.

The assumptions that have the most impact on the model are summarised below. Where appropriate, we have retained the assumption from the previous report.

- Economic:-
 - 7.5% pa gross return on the accumulation of assets;
 - 4.5% pa increase in salaries;
 - 3.0% pa increase in general price inflation of costs;
 - 1.20% expense rate, reducing to 0.60% over 15 years;
 - 0.25% cost of insurance;
 - 15.0% tax on all future employer contributions; and
 - 6.0% investment tax on the investment roll up.
- Long-term real return net of fees, insurance, taxes and wage inflation of 1.7% using the economic assumptions above;
 - This is calculated as $(7.50\% - 0.60\% - 0.25\%) \times (1 - 6.0\%) - 4.5\%^2$.
- Demographic:-
 - Mortality in accordance with the Australian Life Tables 2005-2007 published by the Australian Government Actuary;

² Refer to section 4.7 and the following page for comments on these assumptions

- Future improvement to post-retirement mortality in accordance with the 100 year improvement rates published by the Australian Government Actuary in the Australian Life Tables 2005-2007.
- Future contributions:-
 - Average employer contribution (including salary sacrifice) of 14.0%; and
 - Average member contribution of 3.2%.

1.6 Sensitivities

The sensitivities of the assumptions that have the most impact are detailed below, together with the effect on the Retirement Savings Gap.

Table 4. Sensitivity Analysis

Assumption	Adjustment	RSG	Difference from Base RSG	
	(%)	(\$billion)	(\$)	(%)
Gross Retirement Savings Gap	N/A	897		
Ignore Post-retirement Mortality Improvements	N/A	619	-277	-30.9
Target Replacement Rate = 62.5%	+2.50	1,045	148	16.5
	-2.50	756	-140	-15.7
Real Investment Return ³ = 3.0%	+0.25	782	-114	-12.7
	-0.25	1,012	116	12.9
Long-term Expense Rate = 0.60%	+0.10	935	39	4.3
	-0.10	859	-38	-4.2
Average Employer Contributions = 14.0%	+1.00	817	-79	-8.8
	-1.00	978	81	9.1

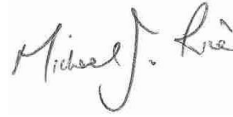
It is important to recognise that the effect of each of the assumptions listed above has been considered in isolation to all other changes, i.e. the effect of the sensitivities is not cumulative.

³ Gross return = 7.5% and salary inflation = 4.5% giving a real return of 3.0%.

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29th October 2010

2. Background to the Retirement Savings Gap

2.1 Measurement Criteria

The Retirement Savings Gap is a measure of the current shortfall in national savings between two amounts:

- The amount required to be saved by the nation as a whole to ensure “adequacy” in retirement; and
- The amount saved in the superannuation system, and estimated to be saved in future years up to retirement, by the current workforce.

The shortfall can be expressed as a lump sum amount, or an amount that needs to be saved on an annual basis over the future working lifetime of the current workforce. In this report, we have presented the figure as a lump sum in present day dollars in line with the Financial Services Council’s requirements and consistent with our previous reports.

The term “adequacy” in retirement can have different meanings for different people. In this report we have determined adequacy to be the savings required at retirement to provide 62.5% of pre-retirement earnings (in real terms) for each year until life expectancy. We have ignored people who earn more than twice average earnings as it is probable that they will have adequate provision in retirement.

The amount saved has been determined by reference to the current level of superannuation savings and the likely level of future superannuation savings based on current contribution trends. In deriving this figure, we have ignored superannuation savings in respect of those people who are already retired.

2.2 Pension Age and Age Pension

Eligibility for the Age Pension currently commences at age 65 for males (females are moving towards age 65). However, the Government announced in its 2009 Budget that the Age Pension eligibility age would gradually increase to age 67 by 1 July 2023.

We expect that younger members will need to stay in the workforce until the new Age Pension eligibility age of 67. In reality, most Australians currently retire before age 65, the median age being about 60. However, if members continue to retire earlier, they will need to live entirely off their superannuation and other savings until they reach the Age Pension eligibility age. This will reduce their savings available to fund later years - when the Age Pension will form a significant part of their income.

In calculating the Retirement Savings Gap, we recognise that in the future around 40% of the Australian population will retire on full Age Pension and a similar number receive a part pension (Treasury expects approximately 75% of people above age 65 to receive some form of the Age Pension in 2050). Adequacy in retirement is a function of Age Pension entitlement, superannuation benefits and income from other investments.

We have made explicit allowance for the Age Pension by modelling the retirement income Retirement Savings Gap separately for different income cohorts and calculating the Age Pension offset for each cohort *at all ages in retirement*.

Section 7 shows the modelling results both before and after taking the Age Pension into account.

2.3 Adequacy

The model is heavily dependent on the definition of “adequacy” in retirement. As stated above, this has been determined to be the savings required at retirement to provide 62.5% of pre-retirement earnings (in real terms) for each year until life expectancy.

We note that the Financial Services Council has chosen the 62.5% figure as it is within the range chosen by an earlier Senate Select Committee on Superannuation and Financial Services within which people can maintain their standard of living in retirements. It concluded that an adequate retirement income would fall between 60% and 65% of pre-retirement income. This equates to approximately 75% of pre-retirement expenditure and is a level which provides an adequate income in retirement, though it is modest for many people.

In our Savings Gap Report at 30 June 2004, adequacy was defined as an income stream at retirement equal to 62.5% of gross earnings, commencing from age 65. However, the “annuitisation” of adequacy implicitly assumes that members who die relatively early in their retirement subsidise those members that do not. Therefore, we believe that the revised definition of adequacy is a better reflection of reality, where the majority of members take their retirement benefit as a lump sum or roll it over to an account-based pension.

More detailed discussion on “adequacy” is contained in our separate *Superannuation Adequacy* report prepared for the Financial Services Council (October 2009).

2.4 Non-superannuation Assets

Our model examines the Retirement Savings Gap mainly in terms of superannuation savings. However, there will be other savings in addition to superannuation held by the general population that will impact upon the “pure” Savings Gap presented in this report. Detailed research and analysis of these savings is beyond the scope of this report. Nonetheless, some comment on the effect that non-superannuation assets might have on the Retirement Savings Gap is considered with the results in Section 7. We have made some broad allowance for investment properties of wealthier individuals, as discussed in Section 4.7.6.

2.5 Population

We have ignored that portion of the population that has already attained age 65. Whilst a large number of this cohort has inadequate provision for retirement, there is little scope to improve this situation through further savings. A small number within this group is still working and may generate some additional savings within superannuation, but most have no capacity to improve their financial position.

Similarly, we have ignored people under the age of 25. The younger generation has a focus on education and work training and need not be concerned about superannuation as a priority at this time. We note that ignoring those aged under 25 serves to decrease the estimated Retirement Savings Gap.

We have also ignored wealthier individuals on pre-retirement incomes in excess of twice average earnings. These individuals hold much of Australia’s private wealth and most should be self-sufficient in retirement.

3. Background

Since August 2003, Rice Warner has prepared a series of reports for the Financial Services Council on the Retirement Savings Gap for the Australian population.

The first (*The Retirement Savings Gap - Two Years On* based on data at 30 June 2004) and second (*The Retirement Savings Gap* based on data at 31 December 2002) reports deemed adequacy to be an income stream at retirement equal to 62.5% of gross earnings, commencing from age 65. We note that the Financial Services Council chose this figure as it was within the range (60% - 65% of pre-retirement income) at which people can maintain their standard of living in retirement, chosen by the late Senate Select Committee on Superannuation and Financial Services. This equates to approximately 75% of pre-retirement expenditure and is a level which provides an adequate income in retirement, though it is modest for many people.

However, for the third report (*Superannuation Savings Gape at June 2008*) and this report (*Superannuation Savings Gape at June 2009*) adequacy has been defined as the savings required at retirement to provide 62.5% of pre-retirement earnings (in real terms) for each year until life expectancy from an account-based pension⁴. We believe that the revised definition of adequacy is a better reflection of reality, where the majority of members take their retirement benefit as a lump sum or roll it over to an account-based pension.

The results of the previous Retirement Savings Gap reports are summarised in the table below. The figures *Before Age Pension* show how much would be needed to be saved if the Age Pension were not present as a safety net. As most Australians receive at least a part-Age Pension, the value of this must be included in overall retirement income. The figures *After Age Pension* are the appropriate figures for comparison purposes.

Table 5. Results of the Rice Warner Savings Gap Over Time

Basis	Data at	Retirement Savings Gap		
		Males	Females	Total
Before Age Pension	December 2002	198	548	746
	June 2004	347	476	823
	June 2008	719	860	1,579
	June 2009	864	961	1,825
After Age Pension	December 2002	n/a	n/a	375*
	June 2004	237	216	452
	June 2008	358	337	695
	June 2009	479	418	897

* The Age Pension was broadly estimated to reduce the savings gap at December 2002 by between \$100 billion to \$200 billion which was an under-estimate of the impact. If we apply the same modelling method used as calculated at June 2004, then the 2002 After Age Pension savings gap is considerably less.

Because the Age Pension was not explicitly allowed for in the savings gap estimate at December 2002 (see the note to the table above), the results in the table above suggest that the savings gap between December 2002 and June 2004 increased by approximately \$77 billion.

⁴ An account based pension allows greater flexibility in an individual's drawdown pattern. For example, individuals are able to adjust their drawdown to maximise their Age Pension benefits (if eligible).

As noted in the 2005 report, the change in the estimated savings gap since the 2003 report reflects:

- High investment earnings over the period;
- A fall in the gap due to improvements in government support;
- Changes in assumptions in the model⁵;
- Change in the underlying population (which had grown over the period); and
- Change in the treatment of the Age Pension integration (this was the main cause of the significant reduction in the savings gap after accounting for the Age Pension).

⁵ Please see Rice Walker, September 2005, *The Retirement Savings Gap - Two Years On*, for details on the change in assumptions.

4. Methodology and Assumptions

4.1 Overview

The Retirement Savings Gap model begins with an analysis of the current size of superannuation industry assets and projected future superannuation contributions and assets (excluding post retirement products) arising from the current workforce. Future entrants to the workforce are not considered and the position of those over retirement age is ignored.

We have also ignored those people currently in receipt of welfare benefits, since calculation of a Retirement Savings Gap for these individuals would be meaningless. This effectively assumes that the proportion of people on welfare benefits would remain constant in future. The model uses projections of the workforce for quinquennial age groups subdivided by bands of income.

By combining growth of the current superannuation market with accumulated projected future contributions, an estimate of likely total future savings - or the "Asset" in the context of this report - is determined. Furthermore, by projecting the workforce to age 65, an estimate of the number of people requiring "adequate provision" can be determined. Age 65 is used as a proxy for retirement age, although we note that a number of individuals will formally retire before this age. This leads to an estimate of likely required savings, or the "Liability" in the context of this report.

The difference between the Liability and the Asset is the Retirement Savings Gap. Once the size of the gap is known, the additional contributions required to bridge the gap can be determined.

4.2 Population Model

A projection of the underlying population forms the basis for the Retirement Savings Gap model, producing the distribution of incomes in each year over the future working lives of different cohorts in the population. This allows determination of the amount of superannuation savings through future contributions, as well as the size of the Liability, which depends directly on pre-retirement earnings due to the adopted definition of "adequacy".

We measure cohorts by age and income in our projection. This is necessary as:

- Younger individuals will have a longer period to make future superannuation contributions than individuals closer to retirement; and
- Measurement of the impact of the social security Age Pension necessitates consideration of different income groups, as lower income earners are likely to have a greater dependence on the age pension in retirement than higher income earners.

We have further segmented each cohort by sex, as this allows measurement of the differences in the Retirement Savings Gap between males and females.

We measure the Retirement Savings Gap in terms of the current population of working age, excluding those earning over twice average earnings. For the purposes of this model, we have assumed the working age population to be the population aged 25-64. The population aged 25-64 as published by the Australian Bureau of Statistics (ABS) was 11.7 million in 2009.

The ABS provides the number of persons by age and sex as follows:

Table 6. Population Aged 25 - 64 in 2009

Age Band	Males	Females	Total
25-29	803,368	781,035	1,584,403
30-34	747,424	744,406	1,491,830
35-39	801,377	810,110	1,611,487
40-44	759,484	766,876	1,526,360
45-49	778,116	791,489	1,569,605
50-54	712,644	725,784	1,438,428
55-59	646,979	658,092	1,305,071
60-64	584,274	585,485	1,169,759
Total	5,833,666	5,863,277	11,696,943

These individuals need to be allocated further to income bands. We have based this analysis on data published in a working paper *Cross-sectional income distributions in the Australian Population* by Mr Tim Higgins of the School of Finance and Applied Statistics, Australian National University.

The paper summarises the number of individuals in a range of income bands by quinquennial age group and sex based on a 1% sample of the 2001 Census sourced from the ABS. Our previous report used the same data to allocate individuals to the income bands which we have now also supplemented with 2006 Census statistics updated by the ABS⁶.

We have adjusted the income bands for general wage inflation over the three years to 30 June 2009, and have applied the resulting income distribution to the population at 30 June 2009 as published by the ABS.

To project the population, we have made assumptions about the expected transfers between income groups (for example, individuals moving from the \$30,200-\$37,700 income band to the \$37,700-\$45,200 income band) over time. This makes allowance for future promotional increases expected in a normal ageing workforce, and therefore higher levels of contributions to be saved in future years. The net effect of the assumed transfers is an average 0.5% p.a. increase in income above general wage inflation.

This method of projecting the number of individuals to retirement age makes no allowance for individuals re-entering the workforce at a later time or for individuals leaving the workforce. It also makes no allowance for broken careers for parents during the birth and the subsequent years of raising children.

This effectively means we assume no change in the level of unemployment, which is unlikely in practice. If we enter a period of higher unemployment, it will increase the Retirement Savings Gap as individuals with broken periods of service would tend to have lower average account balances at retirement and therefore tend to be more reliant on the Age Pension.

⁶ ABS catalogue number 2068.0 - 2006 Census of Population and Housing, Australia.

4.3 Current Savings

Our starting point for calculating the Asset is to determine the amount of current savings in superannuation. The major distributions by market segment have been sourced from the APRA *Quarterly Superannuation Performance* report as at 30 June 2009.

Total assets, number of member accounts and numbers of funds for differing market segments were determined to be as follows:

Table 7. Superannuation Market Breakdown at June 2009

Market Segment	Funds (number)	Assets (\$ billions)	Accounts ('000)
Not for Profit Funds			
Corporate Funds	191	60.8	688
Industry Funds	72	191.4	11,911
Public Sector Funds	38	146.1	3,134
Total Not for Profit¹	301	398.2	15,734
Commercial Funds			
Employer Master Trusts		78.5	1,532
Personal Superannuation		159.0	7,653
Post Retirement Products		97.2	1,365
Retirement Savings Accounts		6.2 ²	413 ²
Eligible Rollover Funds		4.7	6,552
Unallocated Reserves		4.4	
Commercial Funds¹	162	350.1²	17,515⁴
Self Managed Funds	414,707	334.8	811
Total Superannuation	415,170	1,083.1⁵	34,059.9⁶

1. We have reclassified a number of funds to provide a better breakdown of the market (see Appendix C.1. for details). APRA's statistics show \$54.8 billion in corporate funds, \$191.1 billion in industry funds, \$151.6 billion in public sector funds and \$344.6 billion in retail funds.
2. APRA reported total assets of \$1.2 billion held in RSAs at June and September 2008 growing to \$5.8 billion by December 2008 and finally \$6.2 billion at June 2009. The number of accounts has been estimated by assuming that the average RSA account balance is \$15,000.
3. Includes assets in RSAs managed under Retirement Savings Accounts Act (1997) and not included in APRA's statistics
4. Includes members with RSAs and annuities managed under the Life Act and not included in APRA's statistics.
5. Note that APRA's statistics show total superannuation assets of \$1,076.7 billion. We have included the RSAs' assets in our total.
6. We have estimated this total based on actual numbers published by APRA as at 30 June 2009 and the underlying trends

Total superannuation savings at 30 June 2009 amounted to \$1,083 billion. However, for the purposes of this model, an adjustment to this figure is required to take account of:

- Assets in respect of post-retirement members, e.g. allocated pensioners and annuitants;
- Unfunded public sector liabilities; and
- Assets in respect of individuals who earn more than twice average earnings.

4.3.1 *Post-retirement assets*

We have attributed \$214 billion to members of post-retirement funds based on APRA's *Quarterly Superannuation Performance, June 2009* and a survey of superannuation funds holding funds under management of approximately \$205 billion.

The \$214 billion have been allocated to the various market segments as follows:

Table 8. Post-retirement Assets

Market Segment	Post-retirement Assets (\$billion)
Corporate Funds	7
Industry Funds	19
Public Sector Funds	32
Retail Funds	97
Self Managed Funds	59
Total Post-retirement Assets	214

Our estimate of \$32 billion for the Public Sector post-retirement assets as at 30 June 2009 is significantly lower than our estimate of \$115 billion in our previous report as at 30 June 2008.

The reason for the significant reduction in our estimate is due to the unique structure of the CSS and PSS pension arrangements. These funds only accrue member contributions and rollovers. When a member retires, any benefit (apart from lump sums) is transferred to the Department of Finance. It pays the benefit into consolidated revenue and then meets pensions each year as they fall due. One of the consequences of this arrangement is that the amount of assets in the superannuation system falls as each member of these funds retires.

We note that APRA's *Quarterly Superannuation Performance, June 2008* included pensions paid to CSS and PSS members. This resulted in an overestimation by us of post-retirement Public Sector assets. This was because we estimated the post-retirement Public Sector assets by capitalising pension payments. However, pension payments to CSS and PSS members are not derived from the superannuation system and hence there are no assets in the superannuation system held in respect of these pensioners.

Accordingly, we have now excluded pension payments to CSS and PSS members from the total Public Sector pension payments. This results in an estimated value of post-retirement Public Sector assets of \$32 billion (out of total Public Sector assets of \$146 billion).

4.3.2 *Unfunded Public Sector Liabilities*

Unfunded public sector liabilities need to be taken into account as an Asset in the Retirement Savings Gap calculation as they represent guaranteed benefits promised by the various State

and Commonwealth governments and paid out of revenue to individuals when benefit payments fall due. These liabilities declined after the closure of many generous defined benefit arrangements. However, the liabilities have risen in the last few years.

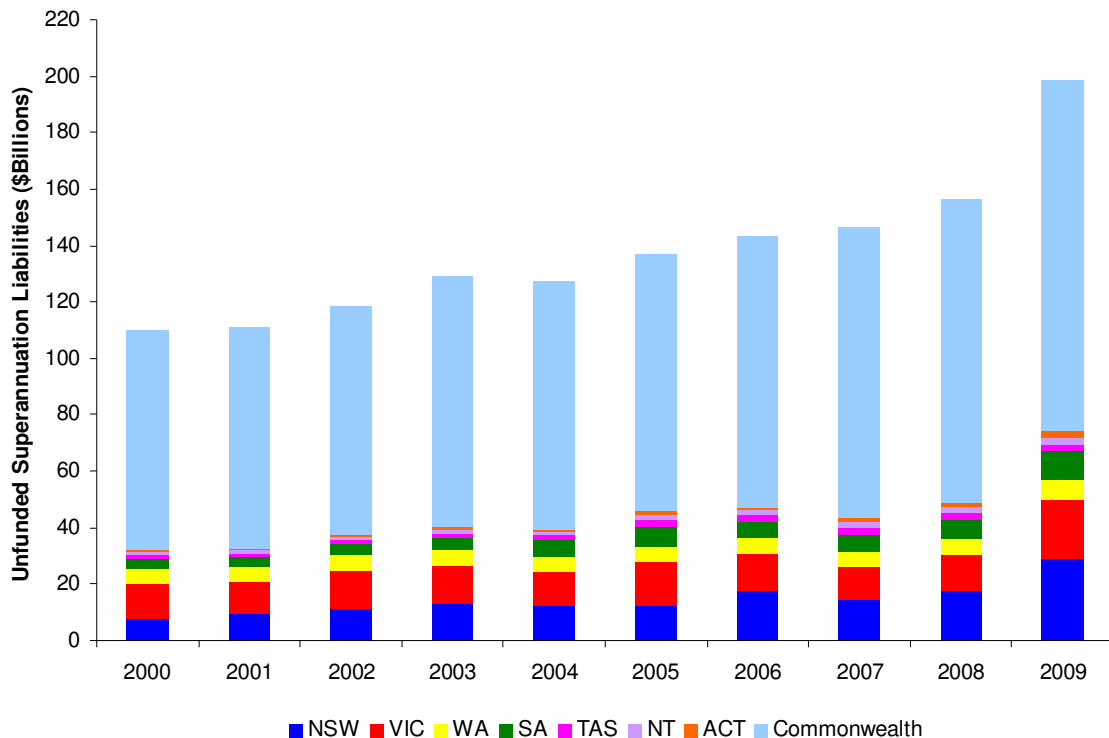
The following data has been collated from state and federal budgets up to 30 June 2009:

Table 9. Unfunded Superannuation Liabilities (\$billions)

	C'wealth	NSW	VIC	WA	SA	TAS	NT	ACT	Total
2000	77.9	7.9	12.3	5.4	3.5	1.2	1.0	0.7	110.0
2001	78.7	9.3	11.8	5.2	3.2	1.3	1.2	0.7	111.4
2002	80.8	11.4	13.4	5.5	4.0	1.3	1.4	0.5	118.3
2003	89.0	13.1	13.4	5.6	4.4	1.4	1.4	1.0	129.3
2004	87.9	12.6	11.7	5.7	5.7	1.5	1.5	0.7	127.3
2005	91.1	12.5	15.3	5.6	7.2	2.5	1.5	1.0	136.6
2006	95.9	17.8	12.9	5.5	6.1	2.1	1.7	1.0	143.2
2007	102.7	14.4	11.9	5.5	5.7	2.5	2.2	1.1	146.0
2008	108.1	17.6	12.9	5.8	6.5	2.5	2.1	1.1	156.6
2009	124.6	29.4	20.7	7.1	9.7	2.7	2.4	2.2	198.8

Notes: Queensland does not have unfunded superannuation liabilities.
These figures do not include 'Other employee entitlements and provisions' liabilities.

Graph 1. Unfunded Superannuation Liabilities



Unfunded public sector liabilities amounted to \$198.8 billion at 30 June 2009. Allowance is made in our model by adding this amount to the “Public Sector Funds” assets from the APRA *Quarterly Superannuation Performance* report as at 30 June 2009.

After adjusting for post-retirement assets and unfunded public sector liabilities, the current savings amount decreases to \$1,068⁷ billion for the purposes of this model.

4.3.3 *Distribution of Assets by Age and Income*

The total amount of superannuation assets needs to be allocated to each projected population group, i.e. to each age/sex/income cohort, before the amount of assets in respect of individuals earning more than twice average earnings can be identified and removed.

We have allocated the \$1,068 billion of current pre-retirement superannuation assets to quinquennial age groups and sex based on a survey of superannuation funds covering funds under management of approximately \$205 billion.

To allocate the amount of superannuation savings in each age/sex cohort further to income bands, we calculated notional fund build-ups in each age/sex/income cohort based on possible past contribution rates. The actual amount of superannuation savings for each age/sex cohort was then distributed further to each income band, pro-rata to the notional accumulations.

The result is a segmentation of current pre-retirement superannuation savings by quinquennial age group, sex and income band. Savings in respect of individuals whose earnings will eventually exceed twice the average were eliminated by deducting the average account balance for each person eliminated from the respective age/sex/income cohort as determined by the population model.

This reduces current savings in respect of the relevant working age population to \$681 billion at 30 June 2009. This results in the following data in respect of current savings for the relevant population:

Table 10. Savings at 30 June 2009

Age Band	Savings (\$M)	
	Males	Females
25 - 29	7,611	7,066
30 - 34	14,787	14,215
35 - 39	25,154	22,453
40 - 44	40,581	29,822
45 - 49	56,271	36,780
50 - 54	77,634	50,278
55 - 59	88,929	62,912
60 - 64	79,643	67,251
Total	390,611	290,778

⁷ This figure is calculated as Total Superannuation Market assets - Post-retirement Assets + Public Sector Unfunded Liabilities (i.e. \$1,083b - \$214b + \$199b = \$1,068b). The increase in this figure from our previous report (\$1,035 at 30 June 2008) is the result of the decreased estimate of savings held in respect of post-retirement members see Section 4.3.1.

Note: this table excludes those earnings less than \$30,000 a year (which includes those out of the workforce). It also excludes those earning more than \$120,000 a year.

4.4 Future Savings and Contribution Rates

The second component of the Asset is the roll-up of future contributions.

Likely future contributions can be determined by applying contribution rates to the total income in each age/sex/income cohort in the population model. However, for the purposes of this study, we have varied the contribution rate by age only.

Note that Employer Contributions are effectively concessional contributions and include salary sacrifice as well as the Superannuation Guarantee payments. Similarly, Member contributions are all non-concessional contributions including large one-off payments made (e.g. from asset sales).

The Employer Contributions do not take the Government's May 2010 commitment to increase the Superannuation Guarantee contribution rate from 9 to 12 per cent into account.

Government co-contributions are made in addition to the Member Contributions shown (see 4.4.1 below).

The assumed contributions by age group are as follows:

Table 11. Assumed Contribution Rates - June 2009

Age Group	Employer* (%)	Member (%)
25-29	9.00	0.00
30-34	10.16	0.74
35-39	11.51	1.60
40-44	13.05	2.58
45-49	14.79	3.68
50-54	16.53	4.79
55-59	18.26	5.89
60-64	20.00	7.00
Average	13.98	3.17

These contribution rates reflect the fact that individuals closer to retirement tend to contribute more towards superannuation. These individuals have fewer other priorities for their disposable income (such as saving for a car or buying a house) than the younger age groups, and saving for retirement is a more pressing issue.

We consider that the above contribution rates better reflect the ability and propensity of individuals at different ages to make contributions to superannuation. We note that these contribution rates still produce contribution levels that are broadly consistent with the current contribution levels as published in APRA's *Quarterly Superannuation Performance Report* dated 30 June 2009 (after allowing for contributions made to self-managed funds).

The average contribution rates do not show the skewness in contributions between members. The majority of members rely entirely on the 9% SG contribution - which is inadequate. However, many members make salary sacrifice contributions which pull up the average. As these are deducted from salary, they decrease the underlying earnings base thereby increasing the percentage of salary paid into superannuation.

The level of member contributions is relatively low but many members transfer other assets into superannuation. These are recorded as contributions even though they are not deducted from payroll.

The model is sensitive to the assumptions employed for future contribution rates. By way of example, a 1% increase in employer contributions results in a reduction in the Retirement Savings Gap (allowing for the Age Pension) of just under \$79 billion or approximately 9%.

Concessional contribution caps were reduced in the May 2009 Federal Budget. From the 2009-10 financial year, the maximum total concessional contributions that persons aged under 50 can make has been halved to \$25,000 p.a. (indexed). The existing cap for those aged 50 and over remains at \$50,000 but from July 2012 will be reduced to be in line with the prevailing cap for those aged under 50.

The Government announced in May 2010 that it would increase the concessional contribution caps for Australians aged above 50 from \$25,000 to \$50,000 where the person's superannuation balance of less than \$500,000.

As we exclude individuals earning over 2 x AWOTE (the group most likely to be affected by the reduced contributions cap) we have not adjusted our contributions assumptions. There will be some members under this salary who will now be prevented from "catching up" their contributions and closing their superannuation savings gap.

4.4.1 *The Co-contribution Scheme*

The Government Co-contribution Scheme has been in operation since 1 July 2003.

In the May 2010 Budget the Government announced that it would scale back the co-contribution scheme. The table below contains the details of the superseded co-contribution scheme (2008 - 09) and the scaling back of the scheme.

Table 12. Changes to Co-contribution Scheme

Contribution Year	Co-contribution Matching Rate (%)	Maximum Co-contribution (\$)
2008 - 09	150	1,500
2009 - 10	100	1,000
2010 - 11	100	1,000
2011 - 12 - onwards	100	1,000

Statistics released by the former Assistant Treasurer, The Honourable Mal Brough, in February 2005 show that around 450,000 individuals received Co-contribution payments in the 2003-04 income year, 37% of payments were in respect of males, and 63% were in respect of females⁸.

⁸ More recent information is not available.

A breakdown of Co-contributions by age band was released as follows:

Table 13. Co-contributions by Age

Age Range	Proportion of Co-contribution Payments (%)
Under 21	4
21 - 25	8
26 - 30	7
31 - 35	9
36 - 40	11
41 - 45	13
46 - 50	14
51 - 55	15
56 - 60	12
61 - 65	6
66 - 70	1
Total	100

We have broadly allocated the projected future Co-contribution payments to individual income bands based on the Co-contribution available as well as the ability/propensity to contribute at each income band. We have further allocated the Co-contribution payments by age and sex according to the statistics released by the former Assistant Treasurer.

We note that the latest ATO taxation statistics, for the year to 30 June 2007, indicated that approximately 1.3 million Co-contributions (a take up rate of approximately 13.0% of those eligible to receive a Co-contribution) worth \$1.2 billion were paid (resulting in an average Co-contribution payment of \$880). For the purposes of calculating the value of Co-contributions received we have assumed that this take up rate of 13.0% will continue into the future.

4.5 Required Level of Funding

The required level of funding is the Liability component of the Retirement Savings Gap calculation.

This component of the model uses the projected number of individuals to retirement age as produced by the underlying population model. As discussed in Section 2.3 the Liability is determined as the savings required at retirement to provide 62.5% of pre-retirement earnings (in real terms) for each year until life expectancy.

4.5.1 Effect of the Age Pension

The continuation of the Social Security Age Pension in its present form indefinitely into the future would significantly reduce the Liability.

As a result of defining the retirees' Liability as the savings required to support a retirement income being sourced from an account-based pension rather than a Term Allocated Pension⁹, we have revised the way that we allow for the Age Pension. The effect of the Age Pension was calculated for each age/sex/income cohort by:

- Calculating the year-by-year age pension to which each individual would be entitled based on their remaining pension account balance and their defined adequate income; and
- Calculating the difference between the savings required to be adequate without the Age Pension and with the Age Pension.

Our analysis makes the following assumptions:

- We have assumed that assets outside superannuation would be negligible for the population in question for the purposes of the Age Pension means test. This is not unreasonable if one considers that for most people considered in the model, the family home will be the only significant non-superannuation asset at retirement, and it is exempt from the means tests.
- We have assumed that 75% of retirees qualify for the Couples pension, and the balance for the Singles pension. This is consistent with the current experience according to Age Pensioner statistics sourced from Centrelink.
- We have assumed that the means test limits would be indexed in line with general price increases in future. This is contrary to the legislated policy, which indexes the limits in line with general wage increases on a year-by-year basis. This approach implicitly assumes systematic tightening of the means tests resulting in a gradual reduction in age pension eligibility over time.

As detailed in section 7, the calculated effect of the Age Pension is a reduction in the Retirement Savings Gap of \$929 billion (rounded).

4.6 Retirement at 67

We expect that younger members will need to stay in the workforce until age 67 (the new Age Pension age from 1 July 2023). If they do not do so and retire earlier, they will need to live entirely off their superannuation and other savings until they reach that age. This will reduce the benefit available to fund later years - when the Age Pension will form a part of their income.

In practice, most Australians currently retire before age 65, the median age being about 60. However, we have started with a base case that members will delay retirement until age 67. Naturally, this significantly reduces the benefit required compared to that needed for an earlier retirement.

By retiring at age 67, members benefit both from the extra savings accumulated during their extended working life and the shorter period over which their retirement income will be consumed. Furthermore, there will not be any delay between the start of actual retirement and the eligibility date to receive the (means-tested) Age Pension. However, we note the practical difficulties in keeping most people within the workforce to such an advanced age.

The Henry Review noted the savings that could be made from shifting members to a later retirement age and recommended shifting the Preservation Age to 67. This would preserve most superannuation benefits for longer and improve overall adequacy. However, it does not seem practical to do this over the next 15 years without generating significant employment

⁹ An account based pension allows greater flexibility in an individual's drawdown pattern. For example, individuals are able to adjust their drawdown to maximise their Age Pension benefits (if eligible).

opportunities for older workers. Further, this would require a major shift in retirement planning for the whole population.

Note that if we had used the median retirement age of 60 to calculate the Savings Gap then the Savings Gap would be much larger than the estimated headline figure of \$897 billion.

4.7 Assumptions

4.7.1 Economic Assumptions

To project the data into the future we have made assumptions regarding inflation, investment returns, administration expenses, mortality etc. These assumptions, detailed below, have been used to calculate the projected growth in each of the segments to an assumed retirement age of 65. No allowance has been made for any retirements prior to age 65.

We have retained the economic assumptions adopted in our previous report. These are as follows:

- 7.5% gross return on the accumulation of assets;
- 4.5% increase in salaries; and
- 3.0% increase in general price inflation of costs.

This effectively assumes a real rate of return of 3% over salary inflation, and 4.5% over price inflation before the effect of expenses and tax. We consider these rates are still appropriate for the purposes of the model.

These assumptions have been derived from various sources.

The gross return on assets has been compared with the assumptions recommended by the Institute of Actuaries of Australia (IAAust) in their report on "Superannuation and Standards of Living in Retirement" dated September 2002. The IAAust recommend a range of assumptions after fees and tax within the range 6% to 8%. Its allowances for fees and tax are not detailed in percentage terms but grossing up to allow for these could result in a range for the gross return of 8% to 10%, which suggests our assumption is below the lower end of the range.

We also recently surveyed the leading asset consultants and a small group of fund managers about the returns they expected over the future. Universally, the group had a similar expected return for each asset class for periods of 10 years and all longer durations. The results of the survey indicated an average nominal return gross of fees and taxes of around 7.5% p.a.

Furthermore, an analysis of superannuation fund returns published by ASFA¹⁰ shows an average nominal return gross of fees and taxes of 10.2% for the 47 years to 30 June 2009. While this nominal return is higher than our assumed nominal return of 7.5%, once it is adjusted for wage inflation, superannuation funds achieved a real return gross of fees and taxes of 2.7% p.a. This is fairly close to our real return gross of fees and taxes of 3.0% p.a.

The increase in salaries roughly reflects the average increase in Average Weekly Ordinary Time Earnings (AWOTE) over the last four years. General price inflation takes into account the Reserve Bank's stated range of 2%-3% p.a. and notes that annualised CPI increases over the last 4 years are 3.0% - hence our adoption of a rate at the upper end of the range.

¹⁰Serhan A, 2009, *Returns: Into the Light*, ASFA SuperFunds magazine, pg 13., issue 339

The results of the model are extremely sensitive to changes in the gaps between the assumptions. More specifically, an increase of 0.25% in the gap between the gross return and the increase in salaries serves to decrease the Retirement Savings Gap by approximately \$114 billion (or 13%).

4.7.2 Management Expense Rates

Our December 2008 report to the Financial Services Council entitled *Superannuation Fees Report 2008 - Market Segment Analysis at 30 June 2008* sets out the fees charged in the superannuation market by industry segment as follows:

Table 14. Fees 2008

Sector	Segment	Total Fees % ¹
Wholesale	Corporate	0.73
	Corporate Super Master Trust ¹¹ (large)	0.79
	Industry	1.07
	Public Sector	0.69
Retail	Corporate Super Master Trust ¹² (small)	2.12
	Personal Superannuation	2.00
	Retirement Income	1.84
	Retirement Savings Accounts	2.30
	Eligible Rollover Funds	2.49
Small Funds	Self Managed Super Funds	0.98
Total		1.21

1. Expressed as a % of *average* assets over the year to 30 June 2008.

As our model does not segment by fund type, we have considered only an average management expense rate across the entire superannuation industry. In our Savings Gap report at June 2008, we assumed that an overall expense rate of 1.20% p.a. (rounded) of assets will halve to 0.60% p.a. over the 15 years to 30 June 2023. This effectively assumed that expense rates will fall by 0.04% p.a. over this period. We have maintained this assumption resulting in an expense rate of 1.16% for the year commencing 1 July 2009.

Note that we expect fees to reduce as a percentage of assets in all market segments, for a number of reasons including:

- Growth in assets, which will mean that fees will reduce as a percentage of FUM;
- Consolidation of accounts which will lead to elimination of many fees on multiple accounts and reduced fees (as a percentage of assets) on the main account;
- Consolidation of superannuation funds, which will lead to elimination of many smaller less-efficient funds;
- Transfers of corporate funds into other arrangements, which usually results in savings of fund costs;
- Improvements in technology which should drive down the cost of managing superannuation;

¹¹ Excludes employer plans with less than \$5 million in assets.

¹² Employer plans with less than \$5 million in assets.

- Reductions in distribution costs as the delivery of financial advice is delivered more cost-effectively to a wider group of members; and
- Establishment of clearing houses to allow employers to make contributions electronically, allowing a significant reduction in costs associated with the collection and allocation of contributions.

The table below contains the year by year management expense rates that we have assumed. These expense rates include all fees charged but do not include the cost of insurance, which is considered separately.

Table 15. Assumed Expense Rates

Year Commencing 1 July	Expense Rate (%)
2009	1.16
2010	1.12
2011	1.08
2012	1.04
2013	1.00
2014	0.96
2015	0.92
2016	0.88
2017	0.84
2018	0.80
2019	0.76
2020	0.72
2021	0.68
2022	0.64
2023 and onwards	0.60

To illustrate the sensitivity of this assumption, a 0.10% reduction in the long term expense rate (from 0.60% to 0.50%) has the effect of reducing the Retirement Savings Gap by about \$38 billion (or 4%).

4.7.3 Cost of Insurance

According to figures published in APRA's *Quarterly Superannuation Performance, at 30 June 2009* report the cost of member benefit insurance over the year to 30 June 2009 was as follows:

Table 16. Cost of Member Benefit Insurance - Year to 30 June 2009

Market Segment	Cost of Insurance \$M
Corporate	98
Industry	1,140
Public Sector	228
Retail	1,609
Total Superannuation Market	3,075

The annual cost of insurance for superannuation funds was therefore approximately 0.29% of pre-retirement superannuation assets over the year to 30 June 2009. In our previous report (Superannuation Savings Gap at 30 June 2008) we had assumed that insurance would cost 0.25% of assets.

As the increase in the cost of insurance is relatively modest we consider it unnecessary to adjust our assumption of adding 0.25% to the annual expense rate. Our approach assumes that any benefit proceeds arising from insurance are not re-invested in the superannuation system.

4.7.4 Taxation

The model allows for taxation as follows:

- 15% contributions tax on all future contributions; and
- 6% investment tax on the investment roll up.

The investment tax assumption is less than the 15% levied on investment income for superannuation products because it makes implicit allowance for imputation credits used by funds to offset the tax and the 10% concessional tax rate on capital gains available to superannuation funds. A 1% shift in the investment tax assumption affects the Retirement Savings Gap by approximately \$16 billion (or 2%).

The taxation elements do not take into account the Government's May 2010 commitment to rebate contribution tax for lower income earners.

4.7.5 Mortality

We have allowed for mortality pre-retirement using the Australian Life Tables 2005-07 (ALT2005-07) published by the Australian Government Actuary. For the quinquennial groupings in this projection, this results in the following probabilities of each age cohort surviving to age 67:

Table 17. Probability of Survival to Age 67

Age Band	ALT 05 - 07	
	Males	Females
25 - 29	0.87	0.92
30 - 34	0.87	0.92
35 - 39	0.87	0.92
40 - 44	0.88	0.93
45 - 49	0.89	0.93
50 - 54	0.90	0.94
55 - 59	0.92	0.95
60 - 64	0.95	0.97

We have also allowed for mortality post retirement in accordance with ALT2005-07. Allowance has been made for improvement in mortality after retirement to permit a more plausible valuation of the income stream in retirement. This allowance has been made by applying the “100-Year Future Percentage Mortality Improvement Factors” published in ALT 2005-07. These factors were derived from the historical trends in Australian mortality improvement over the last 100 years for the purpose of producing estimates of future mortality and life expectancy scenarios.

This effectively assumes that future mortality will improve at the rate of 1.16% p.a. for a 65 year old male and 1.47% pa for a 65 year old female.

The impact of improving mortality has a significant effect on the model. If no allowance were made for improving mortality, the Retirement Savings Gap would reduce by approximately \$277 billion (or 31%).

4.7.6 Non-superannuation Assets

We have made some allowance for non-superannuation assets by allowing for investment properties held by the wealthier individuals in the model. We have assumed that 10% of individuals on incomes over \$94,000 own an investment property, with a mean value of \$450,000¹³ in 2009 dollars.

These assumptions reduce the calculated Gap for those individuals in the model earning between \$94,000 and twice the average income (or approximately \$120,000). These are broad assumptions only, but our modelling indicates that their impact on the Retirement Savings Gap is relatively small, so they are not inappropriate. For example a 10% increase in the value of

¹³ The House Price Index, published in the ABS catalogue number 6416.0, *Price Index of Established Houses: Eight Capital Cities*, fell by 0.7% between June 2008 and June 2009. As the Retirement Savings Gap is not sensitive to this assumption (a 10% increase in the assumed house price results in a fall in the Retirement Savings Gap of 0.2%) we did not consider it necessary to change this assumption.

the investment property reduces the Gap by \$2 billion (or 0.2%). The relatively small effect is due to the fact that any reduction in the Gap due to income derived from these assets is partially offset by a reduction in the Age Pension entitlement.

4.7.7 General

There are a number of items for which we have made implicit assumptions. Whilst it is impossible to be dogmatic about every single possibility and outcome that affects the model, there are a number of items that deserve comment.

For instance, the model assumes that female workers will have a full history of employment, with no breaks in service for maternity leave, career breaks etc. Similarly, it assumes that those women currently off work to bear and raise children will not return. Of course, in practice, some will leave and be replaced by others returning to the workforce. Unfortunately, there are no reliable statistics showing the extent and incidence of broken service so we have not done this more complex modelling. As a result, the model will understate the Retirement Savings Gap for younger females.

The model projects at the individual income level rather than the household income level. Consequently, the results will include those low income “secondary earners” who do not require an “adequate” income stream in retirement when total household income is taken into account. This will serve to overstate the Retirement Savings Gap, although we would expect the overall impact to be small since low income earners have a limited effect on the projection results.

5. Comment on Assumptions

5.1 General

With any model, the results that emerge will be sensitive to the assumptions employed. In particular, difficulties can arise where insufficient data exists to justify a particular assumption or methodology adopted. This section sets out those parts of the model where these difficulties have arisen.

5.2 Current Savings by Age Cohort

The population model provides a mechanism for generating future contributions for the individuals in respect of whom the Retirement Savings Gap is calculated. The starting population for the model is based on income distribution data published in a working paper *Cross-sectional income distributions in the Australian Population* by Mr Tim Higgins of the School of Finance and Applied Statistics, Australian National University, based on a 1% sample of the 2001 Census sourced from the ABS. We have also supplemented this income distribution data with updated 2006 Census statistics published by the ABS¹⁴.

However, the amount of current savings is not segmented in a similar fashion, yet we must do this:

- As we need to know expected term to retirement so that the savings are allocated investment earnings for the appropriate period;
- So there is consistency with the contribution roll-up calculations; and
- As modelling of the Age Pension requires the total amount of assets to be known for each income band.

As detailed in section 4.3.3, we have allocated the total amount of current savings in respect of the population to the different age/sex cohorts based on a survey of superannuation funds covering \$205 billion of funds under management.

The starting point of this demographic projection is an analysis of superannuation accounts as at 30 June 2008. We allocated current savings to the different age/sex cohorts as follows:

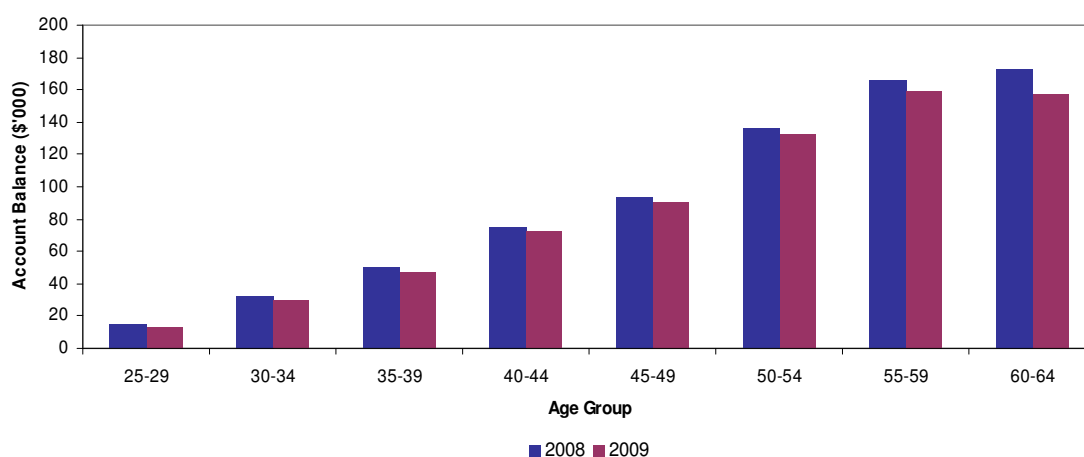
- APRA's *Annual Superannuation Bulletin, June 2008* indicates 32.0 million member accounts as at 30 June 2008. The APRA report gives the breakdown of member accounts by the five main industry segments - Corporate Funds, Industry Funds, Public Sector Funds, Small Funds and Retail Funds;
- We have estimated the number of accounts as at 30 June 2009 from the trend in APRA data;
- We have adjusted the number of commercial fund members to reflect members of retirement savings accounts and holders of annuities which are not included in the APRA statistics;
- We have allocated the commercial fund members to the sub-sectors of the commercial market identified in this report - employer master trusts, personal superannuation, post retirement products, retirement savings accounts and eligible rollover funds. This is a difficult exercise as there are many legacy products, particularly within the life insurance companies;

¹⁴ ABS catalogue number 2068.0 - 2006 Census of Population and Housing, Australia.

- Within each industry sector, we have made assumptions about the number of *active*, *inactive* and *retired* members respectively. We have assumed that the number of *active* members would be approximately equal to the size of the employed labour force;
- We have further allocated the number of members within each sector to each age/sex cell. This was done by reference to membership profiles sourced from a number of industry funds, public sector funds and master trust providers; and
- Finally, we have rebalanced the profile of “active” members to approximate the demographic profile of the labour force as published by the ABS.

The resulting distribution of assets by age is shown below:

Graph 2. Assets Per Person By Age at 30 June 2008 and 30 June 2009

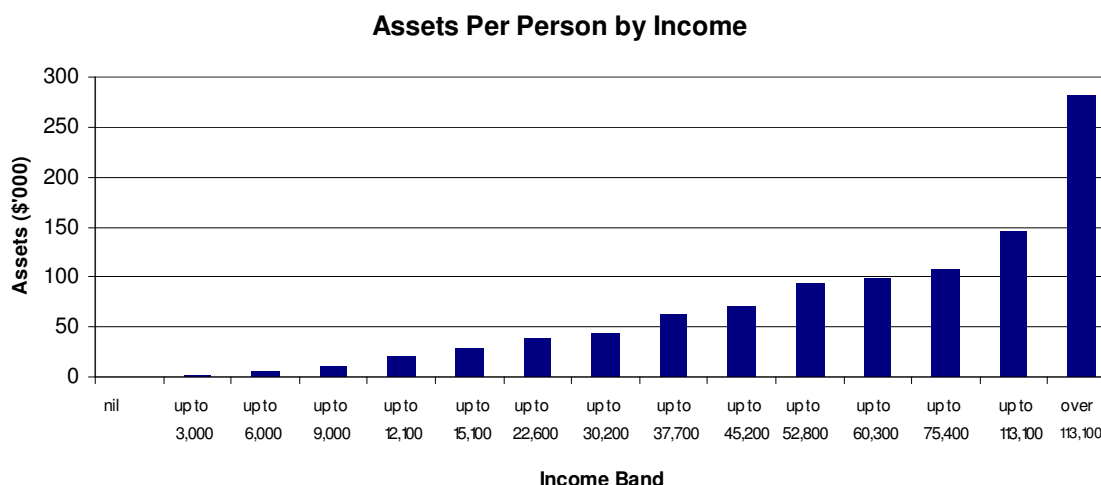


The average account balances are lower than in our previous report. This reflects the significant investment losses experienced during the continuation of the Global Financial Crisis. Figures in APRA's *Quarterly Superannuation Performance, June 2009* report suggest a gross nominal investment loss of around 12% over the year to 30 June 2009 for the overall superannuation market.

The total superannuation assets by age and sex now need to be segmented further by income group. As no reliable statistics suitable for this purpose are available, we have based this allocation on what we consider a plausible past pattern. We considered notional fund balances in each age/sex/income cohort as a basis for distributing the assets in each age/sex cohort (details in section 4.3.3).

The adjusted notional fund balances produced in respect of current members of the workforce results in an overall distribution of assets by income band as illustrated below. This is the distribution across all ages; the actual distribution in each age group would vary.

Graph 3. Assets Per Person by Income



The modelling results for individuals close to retirement would be sensitive to the assumed distribution of assets, as this forms the bulk of the Asset in the Gap calculation. Conversely, the modelling results for younger individuals would not be sensitive to the assumed distribution of assets, as the bulk of the Asset in this case consists of savings through future contributions.

5.3 Future Population Movements

The Retirement Savings Gap model is built on a projection of the population by age, sex and income. The population projection provides the framework which allows the model to calculate the future level of savings through contributions, pre-retirement income for adequacy and eligibility for the Age Pension for population cohorts.

With any model, the difficulty with the projection is determining likely future movement between income-band cohorts. For example, a young professional who joins the workforce after completing tertiary education will be on a low income initially. However, as they progress through professional examinations or gain promotion, that income will rise steadily over time over and above ordinary wage inflation. We call this “promotional increases”. By the mid-point of a working career, experience indicates that promotional increases flatten out.

To allow for such promotional increases, we have assumed a pattern of movement between each income band cohort over time. In brief, we have developed a “transition matrix” which details for people in each income band the income distribution of those people in five years’ time. Successive application of the transition matrix gives the income distribution for individuals for successive five-year periods.

Adopting promotional increases means that some individuals will eventually reach income levels in excess of twice average earnings, and, where this occurs, they are excluded from the model.

The adopted “transition matrix” effectively assumes that 15% of individuals in each income band will progress to the next income band over a five-year period. The average effect of this assumption is approximately a 0.5% increase in salaries above general wage inflation. This is a broad-brush approach, but the calculated Gap is only moderately sensitive to the assumption. For example, increasing the proportion from 15% to 20% decreases the Retirement Savings

Gap by approximately \$109 billion, a 12% decrease (note that the increase in the Gap due to increases in wages is overwhelmed by the decrease in the Gap due to the increase in the number of individuals that reach 2 x AWOTE whom we exclude from our estimates of the Gap).

A summary of the proportion of people in each age cohort whose earnings will exceed twice the average by age 67 (both those currently earning more than twice the average and those projected to rise above twice the average in future) is shown in the following table:

Table 18. Proportion of Population Earning 2x Average Earnings by Age 67

Age Cohort	Current (%)	Future (%)	Total (%)
25-29	3.5	9.0	12.4
30-34	6.6	9.4	16.0
35-39	8.4	7.6	16.0
40-44	8.5	6.9	15.4
45-49	8.4	5.8	14.2
50-54	8.2	4.0	12.2
55-59	6.4	2.1	8.5
60-64	4.3	0.6	4.9
Overall	6.9	5.9	12.8

5.4 Future Contribution Rates

There is little reliable data on the current contribution level by age and income band. While there is a floor equal to the current Superannuation Guarantee level of 9%, our best estimate of the market would be that contributions will be higher for people with higher disposable incomes, and higher for individuals closer to retirement. For the purposes of this model, we assume that contribution rates do not vary by income.

We note that the assumed contribution rates may seem high especially since the 9% SG contribution is the only contribution for the majority of individuals. However, it is important to appreciate that contributions vary significantly by income and age and that the relatively small group of individuals that do make contributions in excess of the 9% SG skew the average contributions rate significantly.

In the absence of better data we consider it more prudent to over-estimate the assumed contribution rates which results in an under-estimation of the Retirement Savings Gap.

6. Differences from Previous Report

Comparison of the modelling results to those presented in the previous report requires an appreciation of the differences between the models in the two reports before any conclusions can be drawn regarding trends over the period.

6.1 Analysis of Differences from Previous Report

A broad analysis of the difference between the estimated Retirement Savings Gap (allowing for the Age Pension) from the previous report is given below:

Table 19. Analysis of Difference of Retirement Savings Gap (Allowing for the Age Pension)

	\$ billion
Retirement Savings Gap Estimate, 30/6/2008	695
Effect of mortality table change	160
Effect of average earnings increase	143
Effect of income distribution changes	34
Effect of demographic changes, movement in account balances and investment earnings	(135)
Retirement Savings Gap Estimate, 30/6/2009	897

Each item in the table above is discussed below.

6.2 Change in Mortality Table

In this update of the Retirement Savings Gap report we have updated the mortality tables underlying our RSG estimates, from the Australian Life Tables 2000-02 to the Australian Life Tables 2005-07 which were released in late 2009.

The estimated increase in the RSG reflects already experienced and future increases in longevity (and hence longer retirement durations) resulting from expected mortality improvements. The table below shows the estimated life expectancies using ALT 00-02 and ALT 05-07 over ten year intervals.

Table 20. Life Expectancy for Males and Females Age 67

Years From Now	Males			Females		
	ALT 2000-02	ALT 2005-07	Difference	ALT 2000-02	ALT 2005-07	Difference
0	84.0	84.9	-0.9	87.7	88.0	-0.4
10	84.6	85.6	-0.9	88.4	88.7	-0.3
20	85.2	86.2	-1.0	89.1	89.4	-0.3
30	85.8	86.8	-1.0	89.9	90.1	-0.2
40	86.4	87.5	-1.0	90.6	90.7	-0.1

The table shows that the average increase in life expectancy is approximately 1.0 years for males and around 0.3 years for females. The increase in longevity results in an increase in the RSG of \$160 billion.

6.3 Increase in Average Earnings

In this report “adequacy” has been defined as the savings required at retirement to provide pre-retirement earnings (in real terms) for each year until life expectancy. Consequently, as earnings increase, the savings required (the liability) to fund an adequate retirement also increases in nominal terms (as opposed to increases in real terms). However, the increase in earnings also leads corresponds to an increase in the estimated savings at retirement (the asset) due to the increase in the dollar amount of contributions paid.

Statistics published by the ABS¹⁵ show that AWOTE increased by 6% between 2008 and 2009. We note that this increase was 1.5% above our long-term salary inflation assumption of 4.5%.

We estimate that the overall effect of the increase in wages over the year to 30 June 2009 increases the Retirement Savings Gap by \$143 billion.

6.4 Change in Income Distribution

In previous versions of our Retirement Savings Gap report we distributed individuals into income bands based on data published in a working paper *Cross-sectional income distributions in the Australian Population* by Mr Tim Higgins of the School of Finance and Applied Statistics, Australian National University. The paper summarises the number of individuals in a range of income bands by quinquennial age group and sex based on a 1% sample of the 2001 Census sourced from the ABS.

In this version of the Retirement Savings Gap report we have supplemented this data with 2006 Census statistics that were published by the ABS¹⁶.

The change in the income distribution results in an increase in the RSG of \$34 billion at 30 June 2009.

6.5 Other Changes

Other changes had a positive net impact on the RSG of \$135 billion. The main contributions were from:

6.5.1 Change in Demographics

Our calculation of the Retirement Savings Gap considers the working population earning less than twice average earnings. The population underlying the current calculation would differ from that at the previous calculation because:

- New entrants into the labour force over the intervening period are now included in the population, and conversely individuals who have left the labour force due to retirement or other reasons are now excluded;
- The underlying population has changed as a result of ageing, mortality and migration; and
- The assumed income distribution has changed from the previous report due to the availability of more suitable data, leading to a change in the assumed number of high income earners who are excluded from the projection.

¹⁵ ABS, August 2009, Catalogue Number 6302.0, Average Weekly Earnings

¹⁶ ABS catalogue number 2068.0 - 2006 Census of Population and Housing, Australia.

When comparing the results in this report to the results in the previous report, it is important to remember that the results are in respect of a slightly different population cohort.

6.5.2 Change in Current Savings

Estimation of the Retirement Savings Gap involves determining individuals' savings at retirement. This involves the accumulation of individuals' current savings and future contributions. As noted in Section 4.3.1 we have revised our estimate of savings held in respect of post-retirement members. This has resulted in an increase in savings held by pre-retirement members despite investment return losses over the year to 30 June 2009.

6.5.3 Change in Investment Earnings

As fund earnings deviate from assumptions, it impacts on the RSG. The impact had been partly taken into account in the previous calculations as had assumed a gross nominal investment loss of 12% based on the figures in APRA's *Quarterly Superannuation Performance, June 2009* report.

7. Results

7.1 Retirement Savings Gap

The Retirement Savings Gap as at 30 June 2009 is calculated as \$897 billion after allowance for the Age Pension, compared to our estimate of \$695 billion as at 30 June 2008. It is important to note that this amount is not a lump sum that is required immediately, but an amount that would need to be funded over the expected term to retirement of the current workforce.

Whereas the estimated Gap has increased by \$202 billion in dollar terms, the underlying population measured has grown from 9.5 million to 10.3 million. The growth came from general population growth (including migration), increase in the population for 25-65, and increases in the cohort eligible (partly due to growth in wages).

The estimated Gap has therefore increased to \$87,900 per person. This represents an increase of approximately \$14,900 per person in nominal terms or approximately \$10,400 in real terms (refer to Table 19 for an analysis of the increase).

The Retirement Savings Gap can be subdivided between the sexes as follows:

Table 21. Retirement Savings Gap by Sex

As at 30 June	2008			2009		
	Males	Females	Total	Males	Females	Total
Asset (accumulated savings plus future contributions)	1,097	886	1,983	1,363	1,120	2,483
Contribution from Age Pension	361	522	884	386	544	928
Projected value of all benefits	1,458	1,408	2,867	1,749	1,664	3,411
Liability (target benefits)	1,816	1,746	3,562	2,227	2,082	4,308
Retirement Savings Gap	358	338	695	478	418	897

As discussed in section 2.3, the Senate Select Committee on Superannuation and Financial Services suggested a range for “adequacy” of 60% to 65% of gross earnings. This gives a range for the Retirement Savings Gap of \$756 billion to \$1,045 billion.

We note that the Retirement Savings Gap (after the Age Pension) is higher for males. Males tend to receive less Age Pension benefits as they generally have greater super savings at retirement. Further, a lower number of males survive to advanced ages (where most retirees receive a full Age Pension). In contrast, females tend to have a lower Retirement Savings Gap as a result of the Age Pension forming a higher proportion of their retirement income (females tend to have lower pre-retirement incomes and therefore lower adequate retirement incomes).

However, if we do not allow for the Age Pension the Savings Gap is higher for females. This reflects the combination of lower super savings at retirement and their longer expectation of life (and thus the longer period over which to provide an adequate income) relative to males.

7.2 Results by Age

The results can be expressed in quinquennial age groupings, together with the required additional annual contribution rate required by each age cohort to achieve the target standard of living in retirement.

The table below shows the composition of the Retirement Savings Gap (after allowing for the Age Pension) by quinquennial age group.

Table 22. Retirement Savings Gap (\$M)

As at 30 June Age	2008		2009	
	Males	Females	Males	Females
25-29	75,354	82,916	105,698	105,811
30-34	71,201	57,839	85,530	69,925
35-39	58,904	48,204	79,314	54,319
40-44	48,200	42,829	63,695	51,592
45-49	46,071	48,729	51,704	60,530
50-54	28,409	35,161	39,608	40,081
55-59	19,017	15,727	32,883	24,024
60-64	10,944	5,995	20,132	11,736
Total	358,099	337,400	478,564	418,018

The table below shows the additional contribution required to offset the Retirement Savings Gap over the future lifetime of each age/sex cohort. This is shown both as an average additional contribution (above the assumed average 14.0% employer and 3.2% member contribution) and as a contribution in addition to the 9% Superannuation Guarantee Rate.

Table 23. Required Additional Contribution - 30 June 2009

Age	Males		Females	
	Average* (%)	Above SG (%)	Average* (%)	Above SG (%)
25-29	4.4	10.8	5.1	11.5
30-34	5.1	11.4	4.3	10.7
35-39	5.5	11.9	3.7	10.1
40-44	5.9	12.3	4.8	11.1
45-49	6.1	12.5	7.2	13.6
50-54	7.2	13.6	7.5	13.8
55-59	10.6	16.9	8.2	14.6
60-64	18.8	25.2	12.4	18.8

* Additional contribution required in excess of an assumed average 14.0% employer contribution and 3.2% member contribution

The rates increase with age, as one would expect. The older age groups suffer from the fact that they have not enjoyed Superannuation Guarantee contributions over their working lifetimes and they have less time over which to amortise the Retirement Savings Gap.

The generally lower rates for females reflect the lower income distribution which increases eligibility for the Age Pension. If the Age Pension is ignored, the rates for females are considerably higher:

Table 24. Required Additional Contribution - 30 June 2009 before Age Pension

Age	Males		Females	
	Average* (%)	Above SG (%)	Average* (%)	Above SG (%)
25-29	7.5	13.8	9.3	15.6
30-34	8.2	14.6	9.0	15.3
35-39	9.2	15.5	9.1	15.4
40-44	10.1	16.5	11.4	17.7
45-49	11.1	17.5	16.2	22.5
50-54	13.7	20.1	18.8	25.1
55-59	22.2	28.6	24.8	31.2
60-64	53.7	60.1	54.3	60.6

* Additional contribution required in excess of an assumed average 14.0% employer contribution and 3.2% member contribution

The difference for females reflects a number of factors:

- The pool of current savings will be less than for males due to career breaks;
- The accumulated future contributions will be less than for males due to the lower average income for females relative to males; and
- A larger pool of assets will be required at retirement to fund pension payments relative to males given the longer expectation of life for females.

7.3 Results by Income

The results can also be expressed by income band.

The table on the following page shows the composition of the Retirement Savings Gap (after the Age Pension) in terms of income:

Table 25. Retirement Savings Gap (\$M) by Income and Sex

Annual Income	Males	Females
under 30,200	0	0
30,201 - 37,700	1,179	3,649
37,701 - 45,200	13,226	24,178
45,201 - 52,800	31,178	47,509
52,801 - 60,300	65,382	78,942
60,301 - 75,400	142,355	135,379
75,401 - 113,100	156,733	100,981
over 113,100	68,511	27,380
Total	478,564	418,018

Most of the Retirement Savings Gap is attributable to individuals earning over about \$45,200, or approximately 70% of average earnings. These individuals would seek to maintain a higher standard of living in retirement compared to lower income earners and would have reduced eligibility for the Age Pension and Co-contribution.

There is no gap for individuals earning under \$30,200 p.a. and the gap is small for individuals earning up to \$37,700 p.a. Some may experience an increase in living standards, as the Age Pension can provide an approximate maximum of \$17,000 p.a. (as from 20 September 2009).

7.4 Other Assets

We discussed in Section 2.4 the impact on the Retirement Savings Gap of Non-superannuation assets. The effect of non-superannuation assets has not been considered in detail in this report. Published data is available in the NATSEM model, but this is only reported in terms of average family wealth rather than per individual and so does not correspond with the make-up of our model.

Any assessment of the effect of non-superannuation assets on the Retirement Savings Gap would need to consider the associated reduction in Age Pension entitlement which would mitigate the effect. Assessment of the overall effect would necessitate having a breakdown of non-superannuation assets by age, sex and income, as the Age Pension entitlement would vary with these variables.

However, we expect that for most individuals considered in this report non-superannuation assets (other than the family home) would form a relatively small proportion of total assets at retirement. That is, individuals earning less than twice average earnings generally do not have a sufficient disposable income to accumulate a significant amount of assets outside of superannuation.

Given the offsetting effect of the reduction in the Age Pension entitlement, we do not expect non-superannuation assets to have an overly large impact on the retirement savings position of individuals in the model.