



Australian Government

The Treasury

PROJECTING THE DISTRIBUTIONS OF SUPERANNUATION FLOWS AND ASSETS

Dr George Rothman and David Tellis

4 July 2008

**Retirement & Intergenerational Modelling & Analysis Unit
Department of the Treasury**

Contact Details:

George Rothman (02 6263 3947), David Tellis (02 6263 4307)

The Retirement & Intergenerational Modelling & Analysis Unit

Department of the Treasury, Langton Crescent, Canberra, ACT, 2600 Australia

E-mail: George.Rothman@treasury.gov.au, David.Tellis@treasury.gov.au

Website: <http://rim.treasury.gov.au>

The views in this Paper are those of the authors and do not necessarily reflect those of the RIMA Unit, the Treasury or the Government.

This paper has benefited from comments and suggestions provided by Julie Tinnion, Simon Lambert, Phil Gallagher, Trevor Thomas, Nigel Murray, Chris Timotheou, Olga Evans and Kane Travers. The contribution is also acknowledged of Simon Lambert of the RIMA Unit who carried out the detailed update of RIMGROUP.

Abstract

A comprehensive analysis is presented of the distribution of contributions by gender, income and age. Concessional (employer) and non-concessional (member) contributions are considered, together with the Government Co-Contribution. A number of recent data sources are used and compared, including data derived from member contribution statements received by the Australian Taxation Office.

These distributions have been used to update Treasury's RIMGROUP model, together with assumptions on behavioural changes related to the introduction of Better Super from 1 July 2007. RIMGROUP is a comprehensive cohort projection model of the Australian population which starts with population and labour force models, tracks the accumulation of superannuation in a specified set of account types, estimates non-superannuation savings, and calculates tax liabilities, social security payments including pensions and the generation of other retirement incomes.

RIMGROUP projections of superannuation flows and aggregates up to 2040-41 are presented, including as proportions of projected GDP. Some distributions of projected superannuation assets are also presented. Key results are discussed including the higher superannuation wealth of successive cohorts of retirees and the improving relativity between the superannuation accumulations of women and men.

INTRODUCTION

Superannuation is very important to Australians at an individual, household and aggregate level. Superannuation is the largest asset after the family home of most households and will be an increasingly important part of generating retirement income for almost all Australians. With aggregate assets of over \$1.1 trillion dollars and large annual flows, superannuation impacts significantly on financial markets, particularly the ASX. The level of voluntary contributions to superannuation impacts on flows to other investments. As well as the large aggregates involved there is public interest in the distribution of superannuation by gender, age and income.

This paper draws on both public and non-public data sources to analyse, compare and present data on the distribution of superannuation flows and assets, primarily in 2005-06. It then uses an updated and benchmarked version of Treasury's RIMGROUP model to project superannuation flows and assets to 2040-41. Distributional aspects of the results, including the changing relative shares of women and men, are presented and discussed.

DATA SOURCES (STRENGTHS AND WEAKNESSES)

Data sources include the 2005-06 Survey of Income and Housing (ABS Cat. No. 6541.0) and the 2005-06 confidentialised Treasury 16 per cent sample (or 1 in 6.25) matched super and personal income tax file, which we re-weight to represent the taxpaying population, adjusting for those who do not lodge returns.

While the ATO and ABS data give a comprehensive view of many of the characteristics of individuals with and without superannuation, there is no single file which captures all characteristics. There is also a lag between economic activity and data collections. So recent changes to superannuation will not yet be apparent from our data. All the data sources have limitations and different data sources often conflict.

The matched super and personal income tax file provides extensive information, such as age, sex, income, deductions, offsets and most of the superannuation items that can be found on the Superannuation Member Contribution Statement (SMCS).

There is significant under representation in superannuation assets (in aggregate) when compared to the equivalent APRA statistics for the same period for both the Treasury confidentialised sample file and the ABS file. For example, superannuation assets in the 2005-06 ABS Income Survey represent around 80 per cent of the comparable APRA assets data (see Chart 1). It should also be noted that the APRA data for the public sector would not include estimates of unfunded liabilities whereas the ABS Income Survey may, in which case there is a large discrepancy between ABS and APRA public sector superannuation assets.

Aggregate superannuation assets data collected by the ATO represents around 56 per cent of average APRA assets for 2005-06 and around 52 per cent of APRA assets at 30 June 2006. It should be noted that responding to the 'account balance' question on the SMCS is only required where the fund accepts a Government Co-contribution and where a fund has received a contribution for a member during the year. The combination of these two factors for people in retirement or not working/making contributions mean that the ATO assets data in the sample file (and in aggregate) will not be directly comparable to the APRA data.

Chart 2 shows a high degree of compatibility between the SMCS data and the aggregate APRA statistics between gross employer, member and other contributions to superannuation in 2005-06. In earlier years this has not always been the case.

Chart 1: Aggregate superannuation assets in 2005-06 as a percentage of the average APRA superannuation assets in 2005-06¹

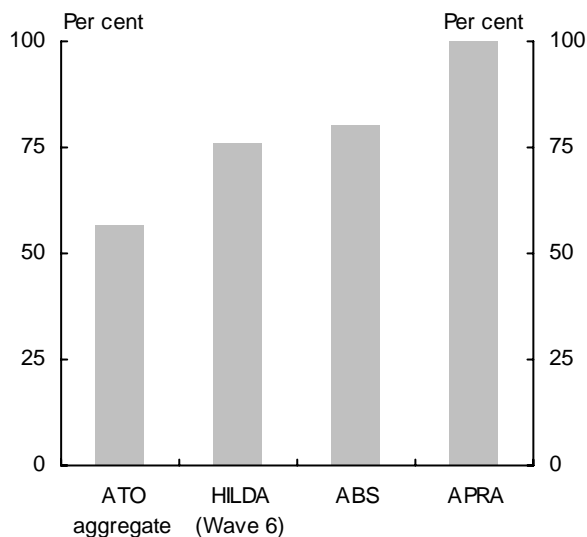
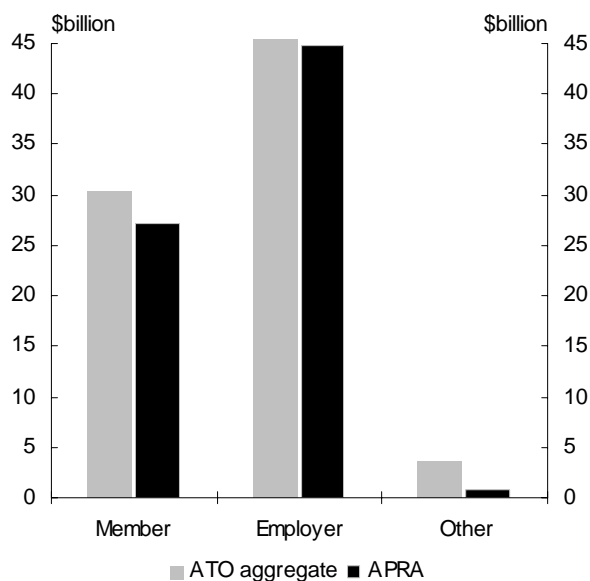


Chart 2: Aggregate superannuation contributions in 2005-06



Source: Unpublished ATO 2005-06 aggregates, 2005-06 Survey of Income and Housing (ABS Cat. No. 6541.0), HILDA (Wave 6)² and the Celebrating 10 years of superannuation data collection 1996-2006, APRA's Insight publication, Issue 2 2007, Special Edition (issued 26 July 2007).

ESTIMATED DISTRIBUTION OF CONTRIBUTIONS BY TYPE, GENDER, AGE AND INCOME IN 2005-06

Contributions to superannuation are treated differently according to whether they are sourced from employees, employers or the self-employed, and whether they are for funded or unfunded schemes.

Concessional Contributions

Up to the age based contribution limits (which still applied in 2005-06), contributions paid by an employer to a superannuation fund are tax deductible to the employer, the same as other wage and salary payments, and importantly do not form part of the taxable income of the employee. In these circumstances funds pay tax in respect of contributions received. We will call such contributions 'concessional contributions'. These include 'salary sacrifice' contributions, which is the term commonly used for contributions to superannuation made by the employer on behalf of the employee which exceed that required by law, awards or the particular superannuation fund(s) to which the employee belongs. Concessional contributions can also be made by self-employed people. The basic tax rate is 15 per cent where the contributions are made to a complying fund.

¹ Average APRA assets were around \$840 billion in 2005-06.

² This paper uses unit record data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA Project was initiated and is funded by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) and is managed by the Melbourne Institute of Applied Economic and Social Research (MIAESR). The findings and views reported in this paper, however, are those of the author and should not be attributed to either FaHCSIA or the MIAESR.

Some exceptions to Superannuation Guarantee (employer) contributions apply, including employees earnings less than \$450 per month or employees under age 18 and working less than 30 hours per week or over the age of 70.

Charts 3 to 8 look only at the distribution by income, gender and age of contributions made by employers. Charts 9 to 12 consider the distribution by income, gender and age of contributions made by individuals out of after tax income. Charts 13 to 16 consider the distribution by income, gender and age of concessional contributions made by the wholly self-employed and others with little or no employer support.

In 2005-06 it is estimated that there were around 9.6 million individuals aged under 65 who received an employer contribution and this flow aggregates to around \$49 billion before tax. It is estimated that around 62 per cent of the concessional superannuation contributions paid by their employers were on behalf of men. The median³ employer contribution was \$2,598 for women and \$3,607 for men. Chart 3 shows that the median employer contributions increase with total income⁴ (as expected), and for most incomes are very similar for men and women. The exception is that the median employer contribution for men in the highest income group is higher than for women reflecting that male total incomes are higher on average. Men and women with total income of \$95,000 or more enjoy the largest median employer contributions, \$10,577 and \$9,309 respectively. Chart 5 shows that around 8 per cent of people receiving employer contributions are in this total income group.

Chart 4 generally shows that median employer contributions also rise with age (reflecting that incomes generally rise with age). The median employer contributions are quite similar for young men and women, but begin to noticeably diverge from around age 25. At all ages, men have larger median employer contributions than women and contributions for men peak at ages 50-54. The dip in median employer contributions for women aged 30 to 40 is due to a relatively high proportion of employed women working part-time in these age groups (the main child rearing years). Men and women aged 50-54 enjoy the largest median employer contributions, \$4,958 and \$3,164, respectively. At older ages median employer contributions for men and women once again begin to converge. Older males have relatively lower wages in part because they are more likely to be working part-time, and have relatively lower educational qualifications.

Chart 5 shows the distribution of men and women receiving employer contributions belonging to five different total income groups (the 2005-06 personal income tax thresholds). The proportion of women in lower income groups is above that of men, while a higher proportion of men than women have total incomes above \$63,000. Chart 5 shows that a small majority of both males and females with employer provided superannuation have total incomes in the range of \$21,601-\$63,000, around 53 and 59 per cent respectively.

³ The median of a set of numbers is the value that falls in the middle when the numbers are sorted in order of magnitude. For n such numbers, the median is the middle value where n is odd and the mean of the two middle values where n is even. The median has an intuitive appeal as a measure of central tendency. At most, half of the numbers fall below the median and at most half fall above. If your data has extreme values the mean will be distorted, so the median is often the preferred measure in such situations.

⁴ The definition of total income used throughout this paper generally refers to the income definition used for the Government Co-Contribution, namely assessable income for the income year plus their reportable fringe benefits total for the income year. For Chart 21, 23 and 25 we use total current income from all sources, as we cannot construct a completely consistent Government Co-Contribution income definition from the 2005-06 Survey of Income and Housing.

Chart 6 shows the distribution of all men and women receiving employer contributions in each of the 10 different 5 year age groups⁵. A relatively small proportion of people receiving employer contributions are aged under 19. This is because many people in this age group, if employed, are employed part-time. The peak for women is above that for men but both occur at age 20-24 when most people are in the labour force and receiving employer contributions. From ages 20 to 49 the proportions in each age group are relatively flat, although for women the proportion is slightly below that for men reflecting that they are proportionately more likely to work part-time due to child rearing. From ages 45 to 59 the proportion of women is generally higher than for men.

Chart 7 shows the proportion of those with an employer contribution as a proportion of those with and without an employer contribution and who lodge an income tax return (including the retired) within total income ranges. It is estimated that coverage peaks at 94 per cent and 98 per cent for men and women, respectively. The peak for women is in the \$21,601-\$63,000 total income range, while the male peak is in the \$63,601-\$95,000 total income range. By age the peaks are 96 per cent and 95 per cent for those aged 20-24 for men and women, respectively. Coverage generally increases with total income and declines across age ranges.

The ABS measure of superannuation coverage⁶ provided by their current employer for employees in their main job with earnings of between \$52,000 and under \$62,400 found that superannuation coverage was 97 per cent for males and 98.7 for females. This is very similar to our finding above.

⁵ Technically, the 19 & under age group is not a five year age group, but age 0-14 does not constitute a large proportion of the 19 & under age group with employer contributions.

⁶ Employee Earnings, Benefits & Trade Union Membership, ABS Cat. No. 6310.0 (August 2006).

Chart 3: Median employer provided super contributions by total income and gender in 2005-06

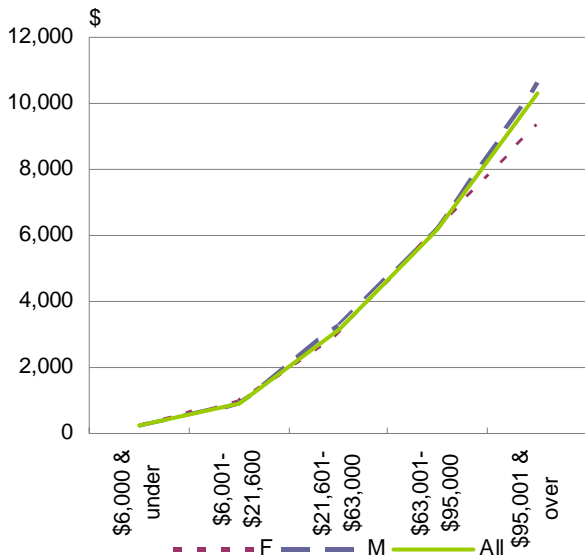


Chart 4: Median employer provided super contributions by age and gender in 2005-06

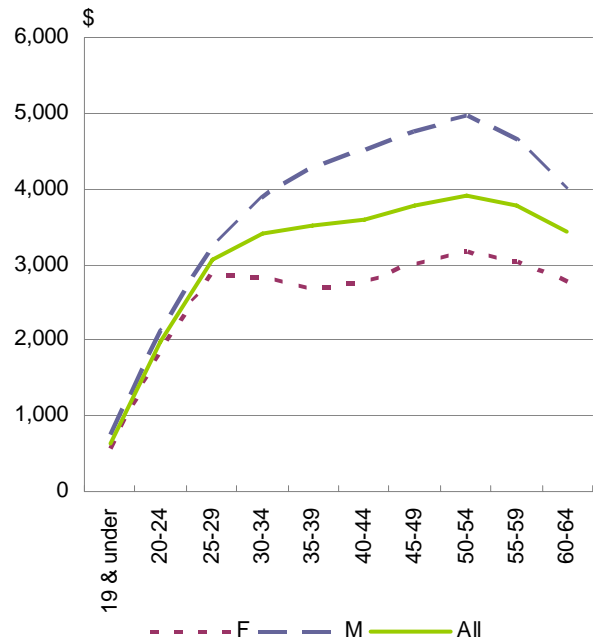


Chart 5: Distribution of those with employer provided superannuation by total income and gender in 2005-06⁷

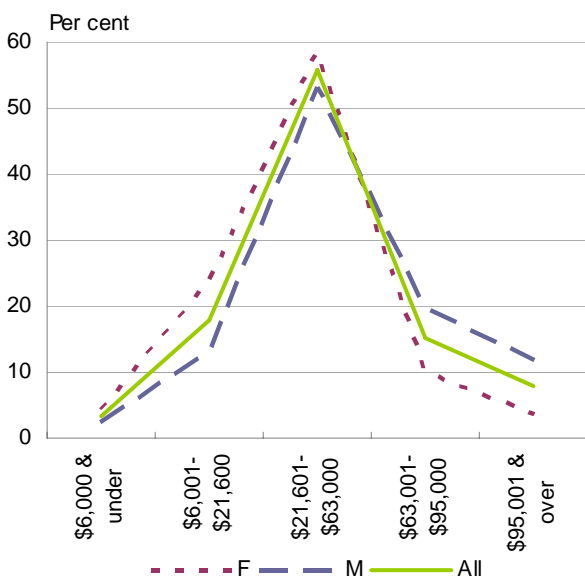
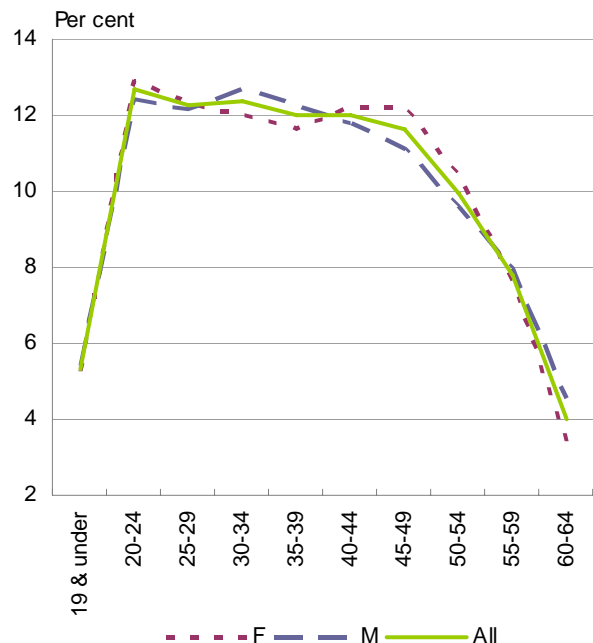


Chart 6: Distribution of those with employer provided superannuation by age and gender in 2005-06



Source: Treasury estimates based on the 2005-06 confidentialised Treasury sample files.

⁷ Proportions within each gender grouping sum to one for Charts 5, 6, 11, 12, 15, 16, 19, 20, 23 and 24.

Chart 7: Coverage of males and females with employer provided super by total income and gender in 2005-06⁸

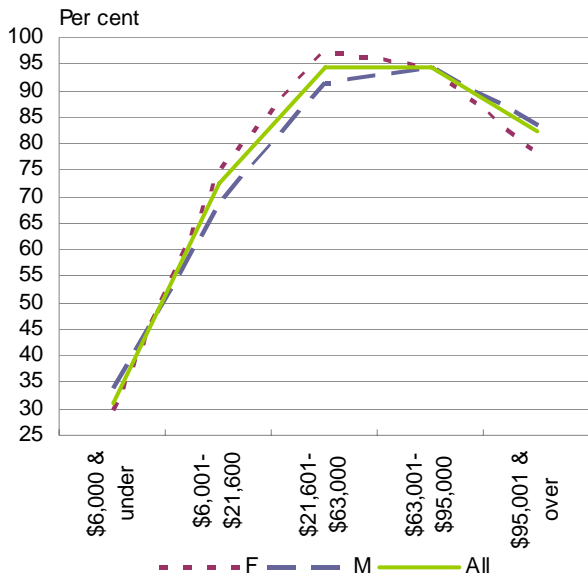
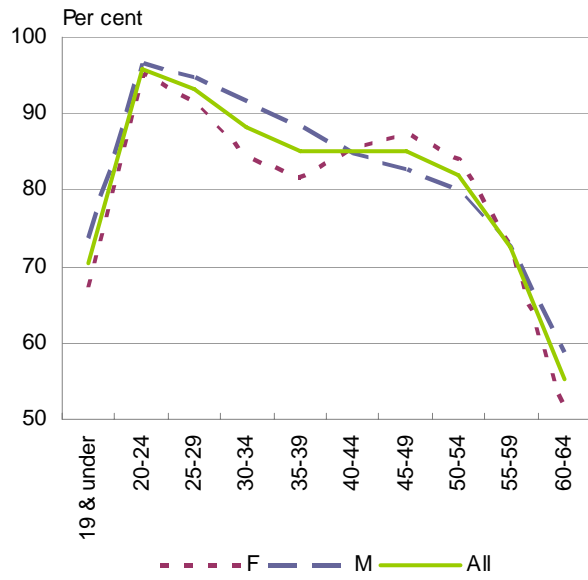


Chart 8: Coverage of males and females with employer provided super by age and gender in 2005-06



Source: Treasury estimates based on the 2005-06 confidentialised Treasury sample files.

⁸ Proportions are for those with the variable of interest (an employer contribution in this case) as a proportion of those with and without the variable of interest within the same range (either total income or age). The population of those with and without a variable of interest is taken to be those who lodged a personal income tax return in 2005-06 (around 11.5 million individuals).

Non-Concessional Contributions

Contributions made directly by employees and others (including the self-employed and the not employed) to superannuation funds are made from after tax income. No contributions of this nature are generally required by law and may be a condition of belonging to the fund nominated by the employer. No contributions tax applies, but earnings derived from such contributions are generally taxable at a maximum rate of 15 per cent. We use the term 'non-concessional' contributions for such contributions.

In 2005-06 it is estimated that there were around 2.4 million individuals aged under 65 who made non-concessional contributions and this flow aggregates to around \$24.5 billion⁹. It is estimated that around 51 per cent of total non-concessional contributions were made by men. The median non-concessional contribution was \$1,125 for women and \$1,792 for men. Chart 9 and Chart 10 both show that median non-concessional contributions rise with income and age, particularly for women with total income in the range \$21,601-\$63,000 and above. Otherwise, median non-concessional contribution for both men and women are very similar. By age the median non-concessional contributions are higher for men across all age ranges. Men and women aged 60-64 enjoy the largest median non-concessional contributions, \$2,433 and \$2,026, respectively. Chart 12 shows that 9 per cent of people making non-concessional contributions are in this age group. Men and women with total income of \$95,000 & over enjoy the largest median non-concessional contributions, \$3,911 and \$5,400, respectively. Chart 11 shows that 11 per cent of people making non-concessional contributions are in this total income group.

Chart 11 shows that the distribution of females making non-concessional contributions to superannuation exceeds that of men, except for the total income ranges of \$63,001-\$95,000 and \$95,001 & over. Chart 11 also shows that the distribution of females and males making non-concessional contributions to superannuation peaks at around 63 per cent and 50 per cent, respectively in the total incomes range of \$21,601-\$63,000.

Chart 12 shows that the distribution of males and females making non-concessional contributions to superannuation rises with age up to and including the age group 50-54. Chart 10 shows that median contributions are also rising strongly with age. This could reflect that you are likely to have greater capacity to save from after tax income if you have been able to reduce expenditure on housing and child rearing, for instance. The percentage of men and women making non-concessional contributions to superannuation are quite similar across the age groups, peaking for both males and females in the 50-54 age range.

⁹ This is likely to include some re-contributions or recycling of contributions. This is discussed in more detail later in the paper. This amount also includes concessional contributions by the wholly self-employed and others with little or no employer support. This reflects how the data on the 'personal contributed amount' is collected on the SMCS.

Chart 9: Median non-concessional contributions by total income and gender in 2005-06

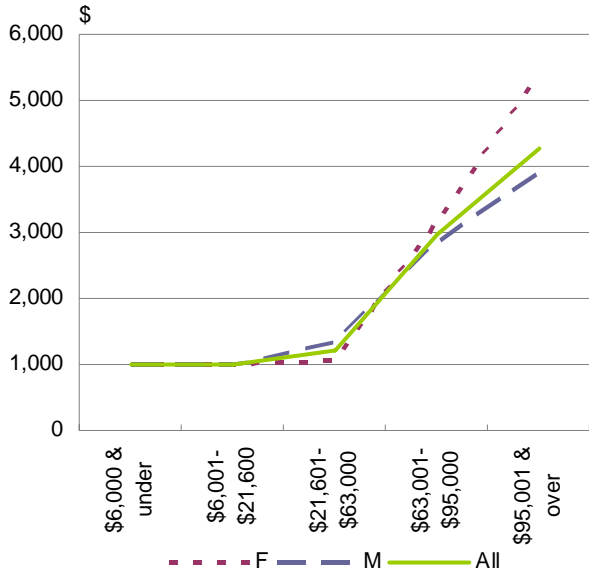


Chart 10: Median non-concessional contributions by age and gender in 2005-06

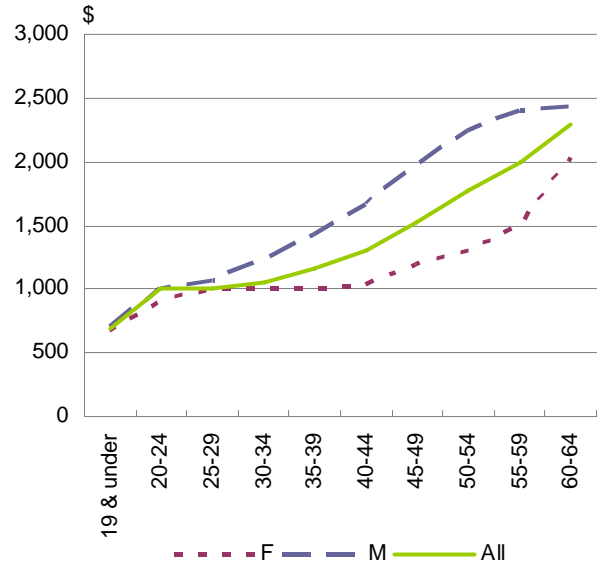


Chart 11: Distribution of those making non-concessional contributions by total income and gender in 2005-06

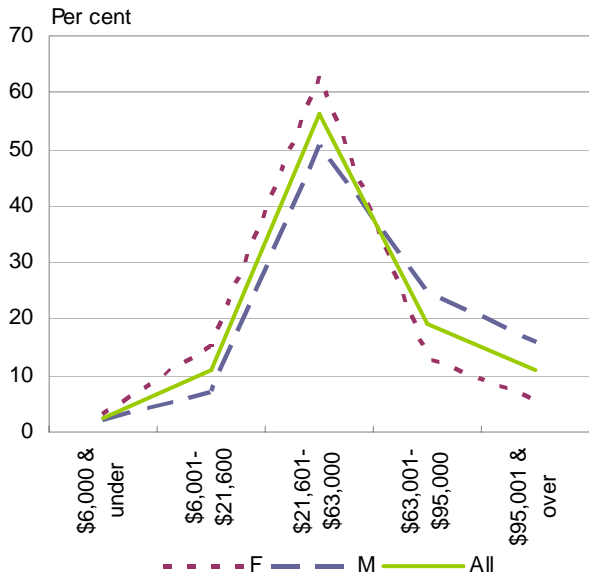
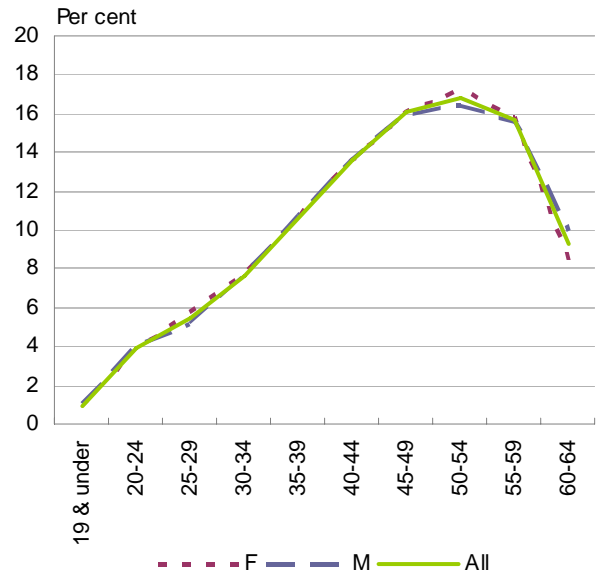


Chart 12: Distribution of those with making non-concessional contributions by age and gender in 2005-06



Source: Treasury estimates based on the 2005-06 confidentialised Treasury sample files.

Non-Employer Sponsored Superannuation Contributions

Up to the 2006-07 income year, superannuation contributions were deductible for income tax purposes in the year you made them, up to the age based limits. These limits applied to:

- employers and their associates claiming deductions for contributions made for the benefit of an employee, and
- certain individuals claiming a deduction for personal superannuation contributions.

In 2005-06, the age based limit were \$14,603 for those under age 35, \$40,560 for those aged 35 to 49 and \$100,587 for those aged 50 to 70 (and 28 days). In order to reach your age based limit, you would need to have had contributions of around \$17,804, \$52,413 and \$132,449, respectively. It is estimated that around 5 per cent of wholly self-employed and others with little or no employer support who claimed an income tax deduction for their contributions aged 35 and under made concessional contributions of \$17,804. Similarly, this statistic is around 7 per cent for those aged 35 to 49 for those who made concessional contributions of \$52,413 and around 8 per cent for those aged 50 to 70 who made concessional contributions 132,449.

In 2005-06 it is estimated that there were around 190,000 individuals aged under 65 who claimed a deduction for their concessional contributions and this flow aggregates to around \$4.2 billion for the wholly self-employed and others with little or no employer support. It is estimated that around 58 per cent of these concessional superannuation contributions¹⁰ were claimed by men. The median contribution for these superannuation contributions was \$6,500 for women and \$4,400 for men. Chart 13 and Chart 14 both show that median concessional superannuation contributions rise with income and age, particularly for women. By income the median concessional superannuation contributions for women are generally higher than men except for total incomes in the range \$6,001-\$26,000 and below. Similarly, by age the median concessional superannuation contributions are generally higher for women across all age ranges, except for the 19 and under age group. Men and women aged 60-64 enjoy the largest median concessional superannuation contributions, \$11,200 and \$28,000, respectively. Chart 16 shows that 17 per cent of people making concessional superannuation contributions are in this age group. Men and women with total incomes of \$95,000 & over enjoy the largest median concessional superannuation contributions of \$15,000 and \$52,400, respectively. Chart 15 shows that 35 per cent of people making concessional superannuation contributions are in this total income group.

Chart 15 shows that the distribution of females with non-employer provided superannuation exceeds that of men, except for total incomes of \$95,001 & over. Chart 15 also shows that the percentage of females and males with non-employer provided superannuation peaks at around 40 per cent in the total incomes range of \$21,601-\$63,000.

Chart 16 shows that the distribution of males and females with non-employer provided superannuation rises with age up to and including the age group 55-59. The percentage of men with non-employer provided superannuation generally exceeds that of women with non-employer provided superannuation, except for age ranges 50-54 through to 60-64.

Compared to the employed, the wholly self-employed and others with little or no employer support who claim an income tax deduction for their contributions appear to making stronger concessional superannuation contributions, especially women. The median concessional superannuation contribution for a male with employer support is \$3,607 and the median concessional

¹⁰ This is the derived concessional contribution based on the amount claimed as a deduction in personal income tax returns.

superannuation contribution for a male without employer support is \$4,400. Similarly, the median concessional superannuation contribution for a female with employer support is \$2,598 and the median concessional superannuation contribution for a female without employer support is \$6,500.

Chart 13: Median non-employer provided superannuation contributions by total income and gender in 2005-06

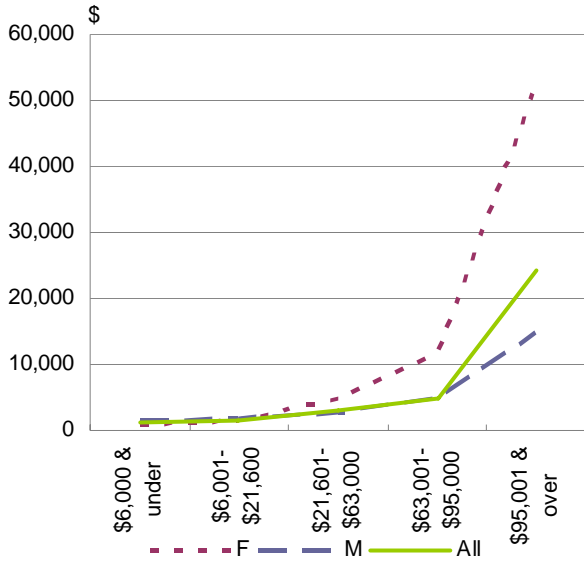


Chart 14: Median non-employer provided superannuation contributions by age and gender in 2005-06

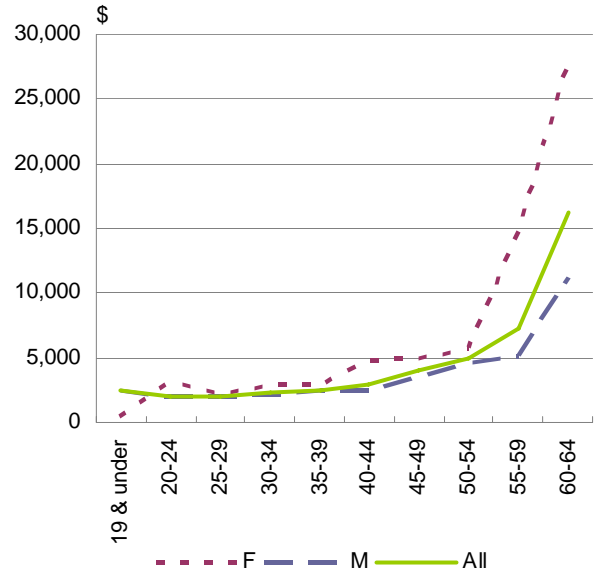


Chart 15: Distribution of those making non-employer provided superannuation contributions by total income and gender in 2005-06

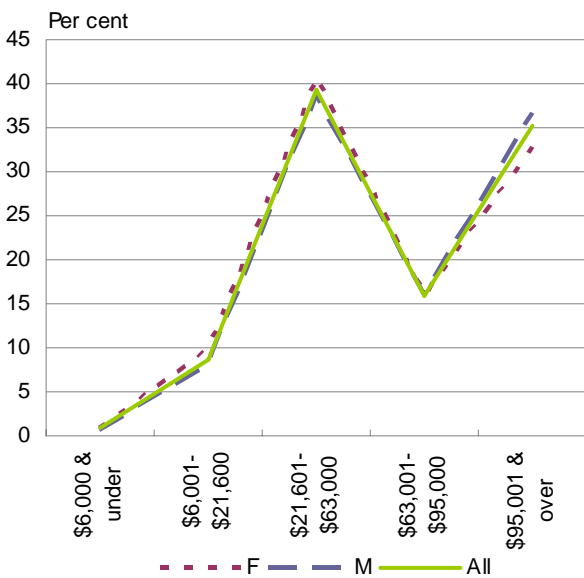
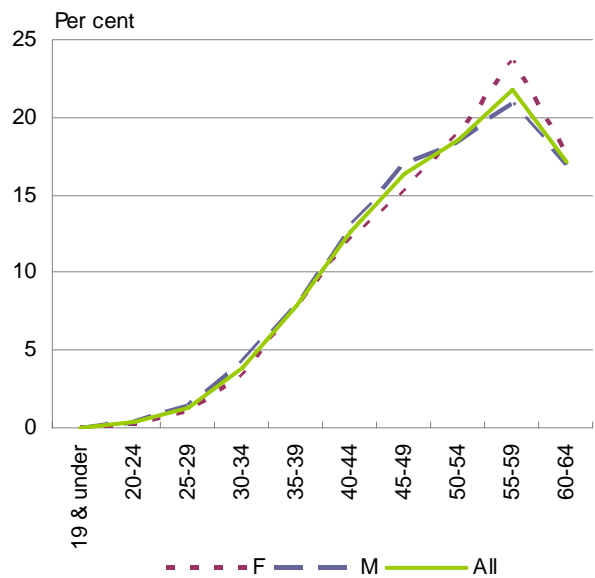


Chart 16: Distribution of those making non-employer provided superannuation contributions by age and gender in 2005-06



Source: Treasury estimates based on the 2005-06 confidentialised Treasury sample files.

Government Co-Contributions

From 1 July 2002, a Government Co-Contribution was introduced in place of the tax offset for personal superannuation contributions made by eligible low income earners. The Government Co-Contribution matches personal undeducted non-concessional contributions by low income earners made on or after 1 July 2002.

In 2005-06 a maximum Government Co-Contribution of \$3,000 (usually \$1,500) was payable in respect of individuals whose assessable income and reportable fringe benefits did not exceed \$28,000 per annum (for a \$1,000 eligible contribution by the individual). The maximum Government Co-Contribution is reduced by 5 cents for each dollar of assessable income and reportable fringe benefits over \$28,000 (up to \$58,000). The Government Co-Contribution is treated as a non-concessional contribution for tax purposes. To be eligible for the Government Co-Contribution, an individual must not be aged 71 or more in the year of making the eligible contribution and must be ineligible to claim a tax deduction for their personal contributions¹¹.

In 2005-06 it is estimated that there were around 1.2 million individuals aged under 71 in receipt of a Government Co-Contribution and this flow aggregates to around \$1 billion (before doubling¹²). It is estimated that around 36 per cent of Government Co-Contributions were paid to men. The median Government Co-Contribution (again before doubling) was \$872 for women and \$648 for men. Chart 17 shows that median Government Co-Contributions are \$1,500 for total incomes at and below \$28,000 and that the amount of Government Co-Contribution reduces beyond this total income owing to the Government Co-Contribution taper. By income and age the median Government Co-Contribution for women are higher than men, except where they have total incomes at or below \$28,000 where they have the same median Government Co-Contribution. Men and women aged 65-71 enjoy the largest median Government Co-Contribution, \$1,010 and \$1,169, respectively or around 2 per cent of persons with a Government Co-Contribution.

Chart 18 shows that median amount of the Government Co-Contribution rises with age, particularly for women. At younger ages (24 and under) the median amount of the Government Co-Contributions are relatively high. This age group represents around 8 per cent of Government Co-Contributions recipients.

Chart 19 shows that the distribution of females in receipt of a Government Co-Contribution exceed the percentage of men in receipt of a Government Co-Contribution at total incomes in the range \$28,001-\$39,999 and below. The opposite is true for the other income ranges (\$40,000-\$49,999 and above) in this chart.

Chart 20 shows that the distribution of females in receipt of a Government Co-Contribution exceed the percentage of men in receipt of a Government Co-Contribution for age groups 30-34 through to 55-59. The opposite is true for the other age groups in this chart.

The Government Co-Contribution provides larger benefits to women than men and the proportion of women in receipt of a Government Co-Contribution is generally higher than that of men. This outcome reflects the generally higher numbers of women in the Government Co-Contribution total income ranges and the numbers making a non-concessional contribution.

¹¹ In addition, 10 per cent or more of your total income must be from eligible employment and you must not held an eligible temporary resident visa at any time during the year.

¹² This is only the 2005-06 entitlement before the additional payment announced in the 2007-08 Budget.

Chart 17: Median Government Co-Contributions (before doubling) by total income and gender in 2005-06

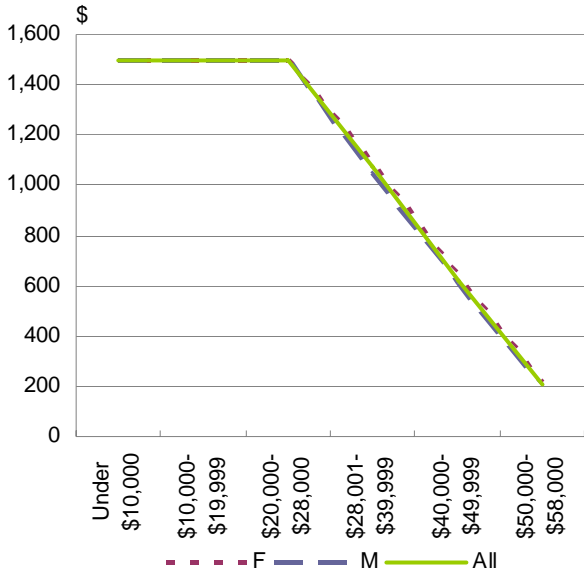


Chart 18: Median Government Co-Contributions (before doubling) by age and gender in 2005-06

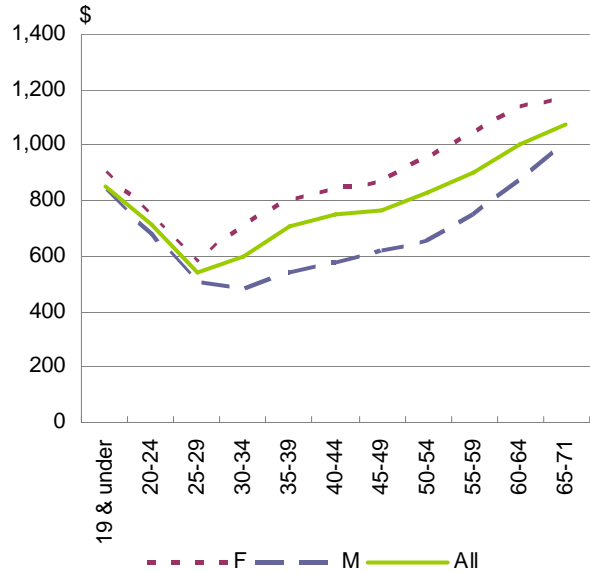


Chart 19: Distribution of those with Government Co-Contributions (before doubling) by total income and gender in 2005-06

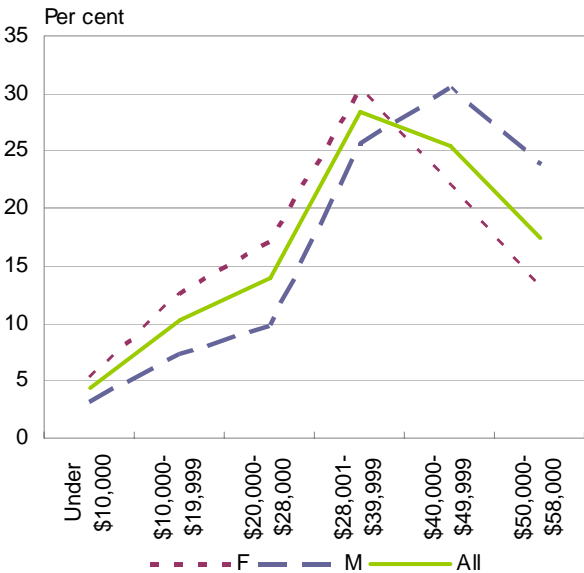
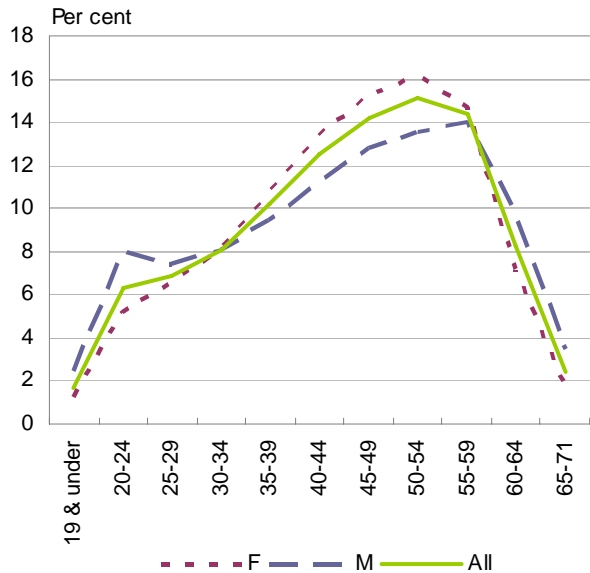


Chart 20: Distribution of those with Government Co-Contributions (before doubling) by age and gender in 2005-06



Source: Treasury estimates based on the 2005-06 confidentialised Treasury sample files.

CURRENT ESTIMATED DISTRIBUTION OF SUPERANNUATION ASSETS BY GENDER, AGE AND INCOME

In 2005-06 it is estimated from the ABS confidentialised data¹³ that there were around 10.6 million individuals with a non-zero superannuation balance and this represented around \$670 billion in superannuation assets. It is estimated that Men with superannuation aged between 15 and 64 (inclusive) own around 66 per cent of superannuation assets¹⁴. The mean superannuation balances were estimated to be \$70,010, \$40,696 and 56,138 for men, women and persons, respectively. These balances are quite similar to those released by the Association of Superannuation Funds of Australia¹⁵. The estimated median superannuation balances were \$24,500, \$13,675 and \$18,000 for men, women and persons, respectively. It should be noted that these superannuation balances exclude some age groups, for instance those aged 65 and over. The average and median balances are higher again with these age groups included¹⁶. The balances would be higher again if we re-scaled¹⁷ to get closer to the Australian Prudential Regulatory Authority aggregates. For instance, average superannuation balances for all persons with superannuation (including those aged 65 and over) are estimated to be \$97,569, \$57,580 and \$78,818 for men, women and persons, respectively after re-scaling. Similarly, median superannuation balances for all persons with superannuation are estimated to be \$31,257, \$18,412 and \$25,006 for men, women and persons, respectively after re-scaling.

Chart 21 and Chart 22 both generally show that mean superannuation balances rise with total income and age. By age and total income¹⁸ the mean superannuation balances for men are higher than women. As expected, men and women aged 60-64 enjoy the largest median superannuation balances, \$197,098 and \$138,526, respectively. Chart 24 shows that around 5 per cent of men and women with superannuation are in this age group. Men and women with total income of \$95,000 or more enjoy the largest superannuation balances of \$190,090 and \$154,332, respectively. Chart 23 shows that around 6 per cent of men and women with superannuation are in this total income group.

Chart 23 shows that the distribution of men and women with superannuation peaks at around 55 per cent for males and females with total income of between \$21,601 and \$63,000. Average superannuation balances in this income range are \$47,946, \$37,489 and \$42,939 for males, females and persons, respectively. Chart 23 also shows that the percentage of females with superannuation

¹³ 2005-06 Survey of Income and Housing (ABS Cat. No. 6541.0).

¹⁴ For those aged between 15 and 64 (inclusive) it is estimated that there were around 10.1 million individuals with a non-zero superannuation balance and this represented around \$568 billion in superannuation assets.

¹⁵ Retirement savings update, Ross Clare, ASFA, February 2008. ASFA reported that average superannuation balances for those aged 25 to 64 (inclusive) were \$69,050, \$35,520 and \$52,200 for males, females and persons, respectively. It should be noted that these balances were averaged over those with and without superannuation. This is the principal reason for any difference in the averages/medians we calculate compared to those reported by ASFA. The average superannuation balances become \$80,946, \$47,032 and \$64,930 for males, females and persons, respectively if we include only those with some superannuation aged 25 to 64 (inclusive). The ASFA report is also based on the ABS Cat. No. 6541.0.

¹⁶ For completeness, average superannuation balances become \$78,038, \$46,054 and \$63,040 for males, females and persons, respectively. These average superannuation balances would be lower if we had computed them for those with and without superannuation.

¹⁷ The required re-scaling is 1.250277.

¹⁸ The total income definition used here is the total current income from all sources (2005-06 basis). This measure includes salary sacrifice, including superannuation salary sacrifice.

just exceed the percentage of men with superannuation for total income ranges \$21,601-\$63,000 and below.

Chart 24 shows that the distribution of men and women with superannuation peaks at around 13 per cent for males and females aged 30-34. Average superannuation balances in this age range are \$27,284, \$21,721 and \$24,602 for males, females and persons, respectively. Chart 24 also generally shows that the percentage of females with superannuation exceed the percentage of men with superannuation at each age group, except for 35-39, 55-59 and 60-64.

Chart 25 shows the proportion of those with superannuation as a proportion of those with and without superannuation in the population within total income ranges. It is estimated that coverage peaks at 96 per cent and 98 per cent for men and women, respectively. The peak for men and women is in the \$63,601-\$95,000 total income range. By age the peaks are 92 per cent and 85 per cent for those aged 30-44 for men and those aged 25-29 for women, respectively. Similarly to Chart 7 and 8, coverage generally increases with total income and declines across age ranges.

Chart 21: Mean superannuation balances by total income¹⁹ and gender in 2005-06

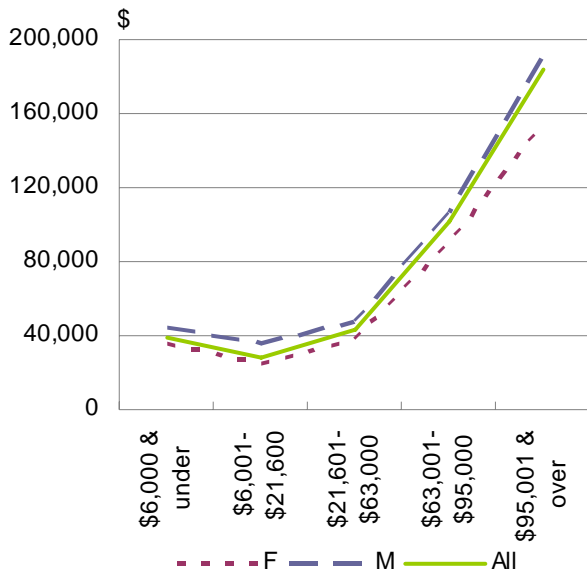


Chart 22: Mean superannuation balances by age and gender in 2005-06

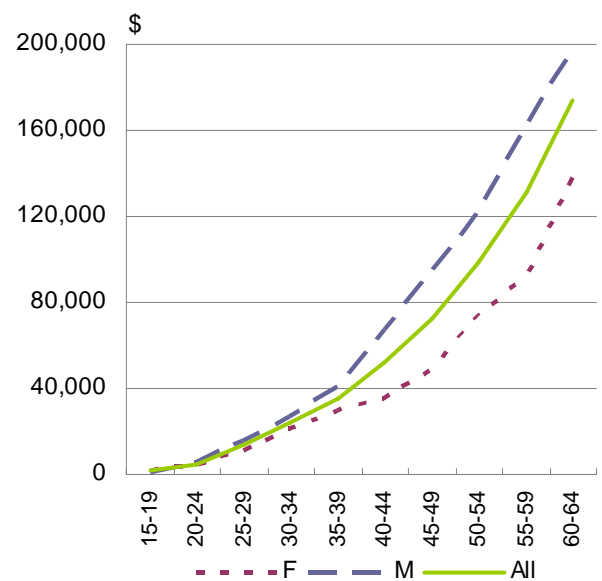


Chart 23: Distribution of those with superannuation by total income and gender in 2005-06

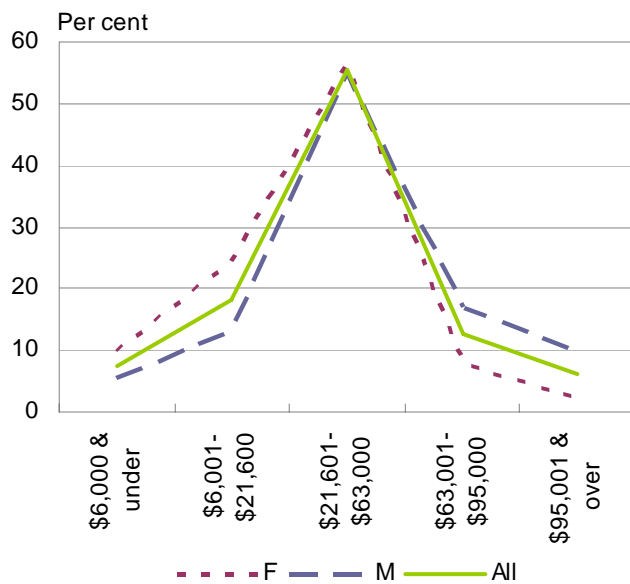
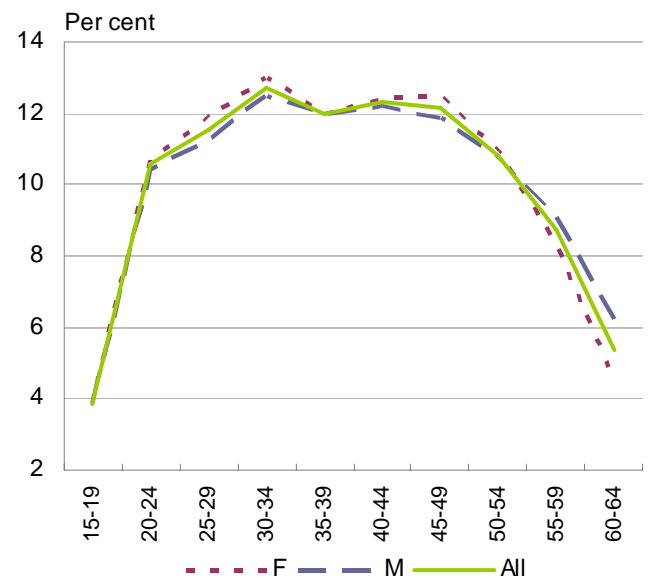


Chart 24: Distribution of those with superannuation by age and gender in 2005-06



Source: Treasury estimates based on the 2005-06 Survey of Income and Housing (ABS Cat. No. 6541.0). Amounts have not been adjusted to benchmark more closely with the relevant APRA aggregate superannuation assets.

¹⁹ The total income definition used here is the total current income from all sources (2005-06 basis). This measure includes salary sacrifice, including superannuation salary sacrifice.

Chart 25: Coverage of males and females with superannuation by total income in 2005-06²⁰

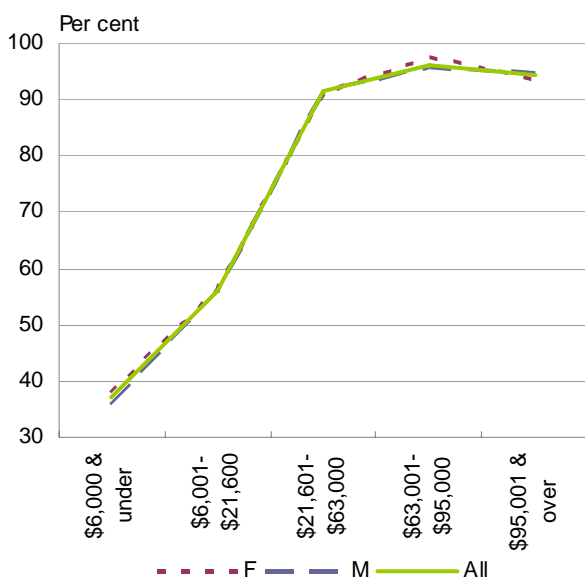
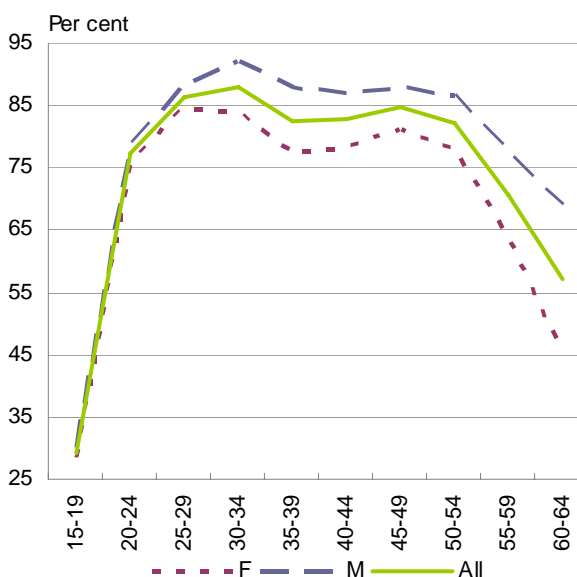


Chart 26: Coverage of males and females with superannuation by age in 2005-06



Source: Treasury estimates based on the 2005-06 Survey of Income and Housing (ABS Cat. No. 6541.0).

THE RIMGROUP MODEL

RIMGROUP is a comprehensive cohort projection model of the Australian population which starts with population and labour force models, tracks the accumulation of superannuation in a specified set of account types, estimates non-superannuation savings, and calculates tax liabilities, social security payments including pensions and the generation of other retirement incomes.

These projections are done for each year of the projection period *separately for each birthyear gender decile cohort*. The model projections begin in July 2000.

RIMGROUP is a very large model incorporating 99,600 records, with many variables calculated for each record and with subgroups formed for those with different superannuation accounts and different retirement ages. Nonetheless, it is not an individually based microsimulation and there is some necessary ‘pooling’ of work experiences, account balances and income levels. For example, unemployment is viewed as a temporary phenomenon and superannuation accumulation is shared by those working and (temporarily) not working²¹. Similarly migrants are pooled with others in the model and may dilute the assets of the group they join.

Aggregate modelling based on RIMGROUP has been of considerable policy significance, see for example Gallagher (1995), Rothman (1997), Rothman (2007). It has been used in preparing both

²⁰ Proportions are for those with the variable of interest (a non-zero superannuation balance in this case) as a proportion of those with and without the variable of interest within the same range (either total income or age). The population of those with and without a variable of interest is taken to be the person population aged 65 and under in the 2005-06 Survey of Income and Housing (around 13.5 million persons).

²¹ But those permanently unable to work through disability are distinguished and treated separately.

the First and Second Intergenerational reports (Intergenerational Report, 2007). More details of the RIMGROUP model and the current set of economic parameters used are in Attachment A.

UPDATING THE MODEL — ASSUMPTIONS ABOUT THE IMPACT OF BETTER SUPER

The RIMGROUP model has been updated to align with the distributions of contributions and assets from the 2005-06 tax file, described above, and to ensure that aggregate flows and assets also align with benchmark data to the extent practicable. Exact alignment is not appropriate, for example for defined benefit funds where RIMGROUP contains only the funded part.

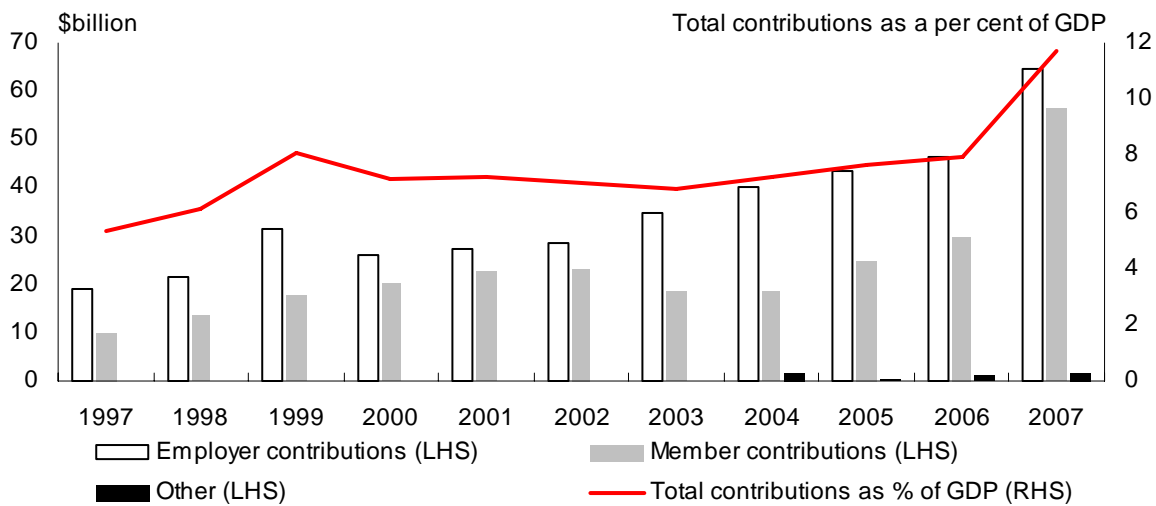
An additional issue related to alignment is member (non-concessional) contributions. A tax minimisation strategy has been available to retirees above preservation age, particularly those with working lives commenced before 1983, whereby they withdraw large sums from their superannuation accumulations tax free (usually \$140,000 or more) and recontribute or recycle these amounts, often the same or next day. This strategy has given these individuals a larger 'return of capital', reducing the tax payable on an allocated pension in retirement. It is difficult to accurately estimate the scale of this, but the amounts probably exceed \$10 billion a year. These amounts are irrelevant to RIMGROUP which aims to cover genuine flows rather than recycling. Accordingly adjustments have been made to exclude these flows. The Better Super arrangements greatly reduce the relevance of such strategies, as flows from taxed pensions for those aged over 60 have become tax free; the strategy is still relevant for those retiring after preservation age but before age 60.

RECENT TRENDS IN (AGGREGATE) CONTRIBUTIONS

The Better Super package generally came into effect on 1 July 2007. From May 2006 to June 2007, people could take advantage of special transitional arrangements, most notably the ability to contribute up to \$1 million of non-concessional contributions before the new contribution limits came into effect. While it is still too early to be confident about any long-term changes in super behaviour due to Better Super, some data is now available about the take-up of the transitional arrangements.

Voluntary contributions to super rose dramatically in the June 2007 quarter, as people took advantage of the transitional arrangements around the introduction of Better Super (see Chart 27, 28 and 29).

Chart 27: Aggregate employer, member and other contributions

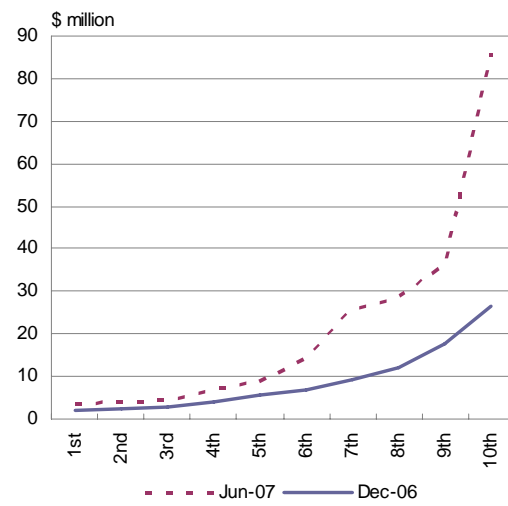
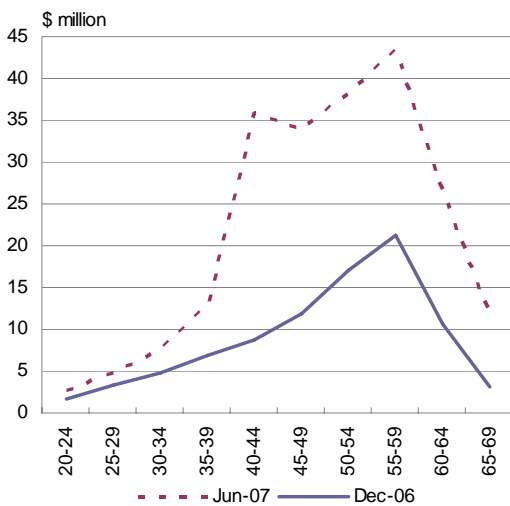


Source: Celebrating 10 years of superannuation data collection 1996 2006, APRA’s Insight publication, Issue 2 2007, Special Edition (issued 26 July 2007); Annual Superannuation Bulletin, Australian Prudential Regulation Authority, June 2007 (issued 26 March 2008) and the Australian Bureau of Statistics (ABS Cat. No. 5206.0).

From the second AMP Adequacy Index Report²² it is clear that older and higher income people were responsible for the bulk of the increase in contributions (see Chart 4 & 5).

Chart 28: Total voluntary contributions to super by age

Chart 29: Total voluntary contributions to super by salary decile



Source: AMP Superannuation Adequacy Index Report, January – June 2007 (Chart 3, page 10).

The Better Super arrangements also improve the relative benefit of contributions to superannuation compared with alternative ways of saving for retirement, subject to not exceeding contribution caps on both concessional and non-concessional contributions. As noted above, Treasury has limited access to up to date information on the impact of Better Super on voluntary contribution rates. The one off surge in 2006-07 shown in Chart 27, 28 and 29 has been incorporated into RIMGROUP.

²² AMP Superannuation Adequacy Index Report, January – June 2007.

AMP Financial Services has released three Reports projecting the adequacy of Australian retirement incomes. The projections are based on up to date information of more than 320,000 AMP members and allows some analysis of the impact of Better Super. The AMP Report for July – December 2007²³ notes the surge in super contributions seen in 2006-07 associated with Better Super has abated as expected, but voluntary contributions, particularly at older ages, remain generally higher in percentage terms than before Better Super. Table 1 below, reproduced from the May 2008 AMP Report illustrates this, including both compulsory and voluntary, concessional and non-concessional contributions. The published AMP data is not in sufficient detail by gender and income to fully update RIMGROUP for Better Super, and is not necessarily fully representative of the whole population, but it has been used to inform the assumptions made.

Table 1: Total contribution rates by age, December 2006 to December 2007

	Dec-06	Jun-07	Dec-07
20-24	10.1%	11.0%	10.1%
25-29	10.2%	11.0%	10.2%
30-34	10.7%	11.4%	10.6%
35-39	10.8%	12.4%	10.9%
40-44	11.3%	16.7%	11.6%
45-49	13.7%	17.7%	12.8%
50-54	14.4%	21.5%	16.0%
55-59	18.1%	28.4%	19.4%
60-64	21.6%	40.0%	25.0%
65-69	25.5%	56.5%	24.4%
All	12.6%	17.2%	13.0%

Source: AMP Superannuation Adequacy Index Report, July – December 2007 (Table 2, page 9).

RESULTS

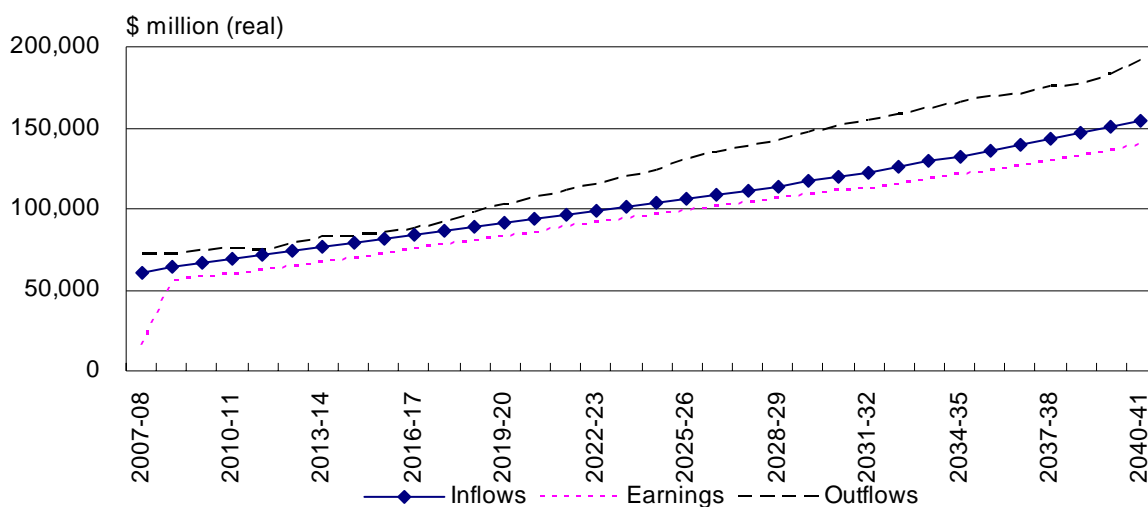
Aggregate flows and superannuation assets to 2040-41 (real dollars and percent of GDP)

RIMGROUP estimates of net flows into and out of Australian superannuation in real 2007-08 dollars are shown in Chart 30 below. The inflows are concessional, non-concessional and Government Co-Contributions less taxes in each year. The earnings are also net of taxes on a mark-to-market, not a taxable, basis. The outflows are payments upon age retirements, disability and early retirement, job change and early release on hardship grounds. The Chart 30 clearly shows that all projected flows increase in real dollars and projected net inflow remains positive.

Chart 31 shows the same flows as proportions of projected GDP. Inflows show a general very slight downwards trend as a percentage of GDP, earnings are also fairly flat in these terms, but projected superannuation assets continue to rise as a proportion of GDP from around 100 per cent initially strongly and then more gradually currently to just under 150 per cent.

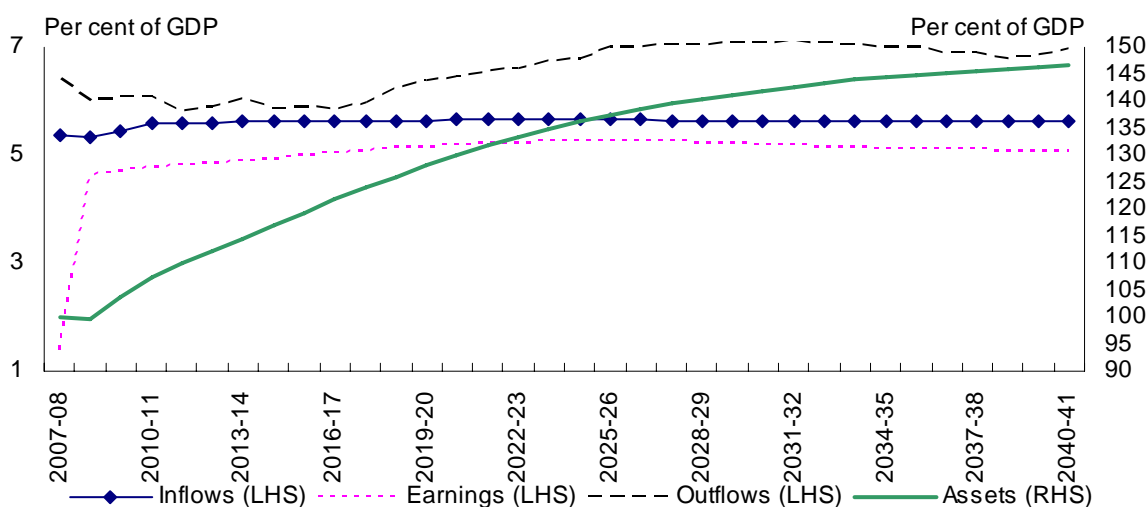
²³ AMP Superannuation Adequacy Index Report, July – December 2007.

Chart 30: Projections of aggregate superannuation flows (accumulation phase), real 2007-08 dollars



Source: Treasury projections using RIMGROUP.

Chart 31: Projections of aggregate superannuation flows (accumulation phase) and total superannuation assets as percentages of projected GDP



Source: Treasury projections using RIMGROUP.

Table 2: Projection of total Australian superannuation assets by gender, \$billion, nominal \$

	Men	Women	Total	Relative assets	Relative average assets
2010-11	\$915	\$455	\$1,370	50%	63%
2015-16	\$1,310	\$690	\$2,000	53%	66%
2020-21	\$1,830	\$990	\$2,815	54%	69%
2025-26	\$2,460	\$1,365	\$3,830	55%	71%
2030-31	\$3,245	\$1,835	\$5,075	57%	73%
2035-36	\$4,235	\$2,415	\$6,650	57%	74%
2040-41	\$5,500	\$3,145	\$8,645	57%	75%

Source: Treasury projections using RIMGROUP.

Table 2 sets out the RIMGROUP projections of aggregate assets in nominal terms as markets tend to work in nominal terms. The relative assets column gives the projected relative aggregate superannuation assets of women as a proportion of those held by men. The next column, headed relative average assets, compares the average superannuation assets of women with superannuation to those held by men with superannuation.

There are other projections published of aggregate superannuation assets. For example the Rice Warner projections²⁴ for 2020 (only go to 2022) are \$3,048 billion in 2007-08 dollars. On a comparable constant dollar basis, this is almost 50 per cent higher than figure in the table above. However, the latest Rice Warner projection is almost 40 per cent higher than their corresponding projection of late 2006²⁵. The latest KPMG projections²⁶ are much closer to latest Rice Warner projections than to RIMGROUP.

Distributions at 2010-11, 2020-21, 2030-31 and 2040-41 by gender age and income

Table 3: Projection of average superannuation assets by gender and income decile

Decile	2010-11		2020-21		2030-31		2040-41	
	Women	Men	Women	Men	Women	Men	Women	Men
2	\$47,750	\$70,400	\$56,800	\$81,750	\$69,600	\$98,950	\$82,650	\$120,350
5	\$64,800	\$101,150	\$94,300	\$141,200	\$126,750	\$185,750	\$160,900	\$234,150
8	\$116,200	\$193,000	\$194,250	\$289,950	\$272,500	\$383,650	\$347,500	\$477,750
10	\$257,600	\$458,750	\$427,350	\$617,100	\$589,000	\$766,950	\$738,800	\$935,800
All	\$126,750	\$211,200	\$201,800	\$290,150	\$276,250	\$368,600	\$347,500	\$453,950

Source: Treasury projections using RIMGROUP.

Table 3 presents more detail on the distribution of the RIMGROUP projections by gender and decile; again the analysis presents averages, in constant 2007-08 dollars, for those with some superannuation. The improving relativity of women's balances is again seen. Within each decile real balances rise sharply. However the strong differences by decile are largely locked in and in cases widened. Of course retirement incomes may not be as widely spread, as the targeted age pension smoothes some of the differences. However assets outside superannuation will also be relevant. Rothman (2007) provides RIMGROUP based projections of adequacy, including assets both within and outside superannuation.

Table 4 presents further detail of the RIMGROUP projections by gender and age range; the analysis presents averages for decile 5, in constant 2007-08 dollars for those with some superannuation.

Table 5 presents average payouts upon age retirement for those with superannuation, again in constant 2007-08 dollars. Again it is apparent that the rise for women is faster than for men. In 2040-41 the average payout for women is 67 per cent that for men. This is different to the 75 per cent ratio for average balances, probably reflecting the fact that the average age at retirement for women is lower than for men.

²⁴ Superannuation Market Projections Report, Rice Warner Actuaries, December 2007.

²⁵ Superannuation Market Projections Report, Rice Warner Actuaries, September 2006.

²⁶ 'Super funds to reach \$3.3 trillion by 2017 – but beware the fall', KPMG media release of 13 December 2007.

Table 4: Projection of average superannuation assets for decile 5 by age group and gender

Age	2010-11		2020-21		2030-31		2040-41	
	Women	Men	Women	Men	Women	Men	Women	Men
20 - 24	\$6,000	\$8,000	\$7,000	\$9,500	\$8,500	\$11,000	\$10,000	\$13,500
25 - 29	\$24,000	\$27,500	\$21,500	\$26,000	\$25,500	\$30,500	\$30,500	\$37,000
30 - 34	\$48,000	\$53,500	\$42,000	\$51,000	\$50,000	\$60,500	\$60,000	\$72,500
35 - 39	\$54,500	\$80,500	\$65,500	\$87,000	\$67,500	\$96,000	\$80,500	\$114,500
40 - 44	\$62,500	\$104,500	\$90,000	\$130,500	\$89,500	\$140,500	\$106,500	\$167,500
45 - 49	\$76,000	\$129,000	\$106,500	\$179,000	\$127,000	\$203,500	\$139,500	\$233,500
50 - 54	\$99,000	\$168,500	\$138,500	\$239,000	\$184,000	\$294,000	\$197,500	\$331,500
55 - 59	\$135,500	\$198,500	\$183,500	\$286,500	\$245,000	\$375,000	\$299,000	\$439,000
60 - 64	\$200,500	\$273,500	\$266,000	\$353,500	\$384,000	\$479,500	\$530,000	\$606,500

Source: Treasury projections using RIMGROUP.

Table 5: Projection of age retirement payouts by gender

	Women	Men	Total
2010-11	\$148,500	\$287,000	\$204,500
2020-21	\$199,000	\$330,000	\$256,000
2030-31	\$263,500	\$432,000	\$336,500
2040-41	\$324,000	\$485,000	\$395,000

Source: Treasury projections using RIMGROUP.

SENSITIVITY ANALYSIS

In the projection process many judgements need to be made, including on future population, immigration levels and ages, participation rates, retirement ages, future expected returns of superannuation funds, and future levels of voluntary contributions. There is also sensitivity to government policies such as the Government Co-Contribution, and the Better Super policies.

Government policies such as the Better Super can have immediate effect, such as the removal of taxes on end benefits from a taxed fund for those aged over 60. Alternatively, some parameter variations may have significant impact only after a substantial period of time. Changing investment returns in our modelling to around 1 percentage point higher than the base case has limited impact initially, but much higher impact after say, a 30 years period, after which retirees (in accumulation funds) will enjoy much higher superannuation balances and consequentially higher retirement incomes. Ten years of consistently higher returns by 1 percentage point, generates about 8 per cent higher balances at retirement, while 30 years of higher returns increases average balances at retirement by about 15 per cent. Similarly higher voluntary superannuation contributions take a long time to show up in the projections.

CONCLUSIONS

Much of this paper's comprehensive analysis of the distribution of superannuation contributions updates and confirms previous studies. For instance, how contributions' rise with age; but some key findings are worth emphasising.

We find that the persons with little or no employer support who claim an income tax deduction for their contributions to superannuation are generally making greater provision for retirement than those with employer support, particularly women.

The Government Co-Contribution provides larger benefits to women than men and the proportion of women in receipt of a Government Co-Contribution is generally higher than that of men. The outcome reflects the generally higher numbers of women in the Government Co-Contribution total income ranges and the numbers making a non-concessional contribution.

We find superannuation coverage generally increases with total income but peaks and then declines across age ranges.

The results from the updated RIMGROUP projections provide a level of disaggregation and detail that has rarely been published. The finding that (contribution) inflows are projected to be a relatively flat 5 per cent of GDP has potential implications for financial markets. Similarly the finding that projected superannuation assets continue to rise as a proportion of GDP from around 100 per cent to just under 150 per cent is significant²⁷.

Notwithstanding this strong projected growth, the Rice Warner aggregate projections for 2020 only are almost 50 per cent higher than the corresponding RIMGROUP projections; KPMG projections for 2017 are quite close to Rice Warner's. At this time the reasons for these differences are not known — all such projections require many assumptions but the difference is too large to be accounted for by a simple difference of say, one percentage point, in superannuation returns.

A number of projections all confirm that the relative position of women in the superannuation system should improve over time. For example the relative average assets of women compared with men are projected to rise from 63 to 75 percent. Considering that we know women have lower participation rates, more part-time work, and lower average wages associated with different occupational composition, the 75 per cent finding can be taken as quite positive. A similar picture can be found in comparing growth in payouts for women with those of men; these projections indicate that women's age retirement payouts in 2040-41 are 2.2 times those in 2010-11 in real terms, while the corresponding ratio is 1.7 for men.

However the strong differences in superannuation holdings by income decile (within gender) appear to be largely locked in and in some cases widened over time. This result reflects the strong continuing differences in voluntary saving by income level.

²⁷ A similar finding was published in the 2007 Intergenerational Report based on an earlier version of RIMGROUP and the then projection of GDP.

REFERENCES

Clare, R., 2008, *Retirement savings update*, ASFA Research & Resource Centre

AMP Superannuation Adequacy Index Report, January – June 2007 (issued 31 January 2008)

AMP Superannuation Adequacy Index Report, July – December 2007 (issued 27 May 2008)

Celebrating 10 years of superannuation data collection 1996-2006, APRA's Insight publication, Issue 2 2007, Special Edition (issued 26 July 2007)

Annual Superannuation Bulletin, Australian Prudential Regulation Authority, June 2007 (issued 26 March 2008)

2005-06 Survey of Income and Housing (ABS Cat. No. 6541.0)

Employee Earnings, Benefits & Trade Union Membership, ABS Cat. No. 6310.0 (August 2006)

The Household, Income and Labour Dynamics in Australia (HILDA) Survey — Release 6.0 (Wave 6, general release)

Bacon, B. R., *Labour Force Status, Earnings, Asset Accumulation, Retirement Behaviour and Long-run Projections*, RIM Task force for a brief description of LFSSMOD, 1995

Gallagher, P., 1995, *The Policy Use of the Products of the Retirement Income Modelling Task Force*, Third Annual Colloquium of Superannuation Researchers, University of Melbourne.

Rothman, G., 1997, *Aggregate Analyses Of Policies For Accessing Superannuation Accumulations*, Fifth Annual Colloquium of Superannuation Researchers, University of Melbourne

Rothman, G., 2007, *The Adequacy Of Australian Retirement Incomes — New Estimates Incorporating The Better Super Reforms*, Fifteenth Colloquium of Superannuation Researchers, University of New South Wales

Intergenerational Report 2007, circulated by Peter Costello, Treasurer, April 2007. Available at www.treasury.gov.au/igr

Superannuation Market Projections Report, Rice Warner Actuaries, December 2007. Extract available at

http://www.ricewarner.com/news_pdf/11Media%20Release_Super%20Projections%20Report_Dec%202007.pdf

Superannuation Market Projections Report, Rice Warner Actuaries, September 2006. Extract available at

http://www.ifsa.com.au/documents/2007_0110_Superannuation%20Statistics%20January%202007.pdf

Super funds to reach \$3.3 trillion by 2017 – but beware the fall, KPMG media release of 13 December 2007. Available at

<http://www.kpmg.com.au/Default.aspx?TabID=214&KPMGArticleItemID=2809>

ATTACHMENT A: THE RIMGROUP MODEL

RIMGROUP is a comprehensive cohort projection model of the Australian population which starts with a population and labour force model, tracks the accumulation of superannuation in a specified set of account types, estimates non-superannuation savings, and calculates tax payments and expenditures, social security payments including pensions and the generation of other retirement incomes.

These projections are done for each year of the projection period *separately for each birthyear gender decile cohort*. The model projections begin in July 2000 and incorporate government policies up to and including the Better Super reforms which mostly commenced on 1 July 2007. Aggregate modelling based on earlier versions of RIMGROUP has been of policy significance, for instance, in Gallagher (1995) and Rothman (1997).

Some more details of the RIMGROUP model are given in Rothman (1997) and Gallagher (1995).

Strengths and Limitations

The strengths of RIMGROUP lie in:

- The major new parameter research underlying the model in relation to many distributional aspects of superannuation, non-superannuation savings, labour force dynamics and retirement documented in earlier papers (including Bacon (1995)). Research has been carried out on superannuation sectors not previously extensively researched, such as the public sector, self employed and rollover funds. An extensive set of decrements have also been researched to account for losses on job change, disability, hardship and death as well as retirement. A number of significant new data sets have been created as part of this research. For the current projections RIMGROUP has been benchmarked to the latest available ABS distributional data.
- The comprehensiveness of the model. This includes the integration into RIMGROUP of a full population model, labour force projection model, the endogenous calculation of GDP, an extensive study of retirement, coverage of saving other than superannuation and wide coverage of government payments to beneficiaries and pensioners, together with modelling of taxation, tax expenditures, and national savings.
- The detail incorporated into the model, particularly the strong distributional framework which distinguishes by superannuation account, age, income and gender. Taxation and government payments are also coded in considerable detail. A wide range of distributional results are available as well as key aggregates.
- The very long time frame, to 2060 if required and appropriate.
- The facility to make changes in all underlying parameters and assumptions including the ability to make direct changes through a user friendly interface to the most frequently changed policy and economic parameter settings.

The principal limitations of RIMGROUP lie in:

- In the essential nature of a group model. The model is a very large one incorporating 99,600 records, with a large number of variables calculated for each record and with subgroups formed for those with different superannuation accounts, different ages of retirement and so on. Nonetheless, it is not an individually based microsimulation and there is some necessary

‘pooling’ of work experiences, account balances, income levels and so on. For example, unemployment is viewed as a temporary phenomenon and superannuation accumulation is shared by those working and (temporarily) not working²⁸. Similarly migrants are pooled with others in the model and may dilute the assets of the group they join;

- In macroeconomic linkages being externally imposed rather than endogenous to the model. For example unemployment is exogenously supplied and does not respond automatically to the build up of superannuation or changing retirement rates or other aspects of the economy;
- The assets in the model do not include the unfunded liabilities of public sector DB schemes, even where it can be argued that specified non-superannuation assets of the Commonwealth or States back the liabilities. However the retirement incomes paid from such schemes are included; and
- Some data which continue to be unavailable in the detail needed. The extensive and demanding data base continues to need maintenance and fine tuning.

DEMOGRAPHY AND LABOUR FORCE

The base demographic scenario is essentially identical with middle scenario as published by the ABS. The labour force scenarios have been generated specifically by RIMAU.

Retirement

Retirement can be a complicated process whereby full-time workers may pass through a period of part-time work or become a discouraged job seeker before leaving the work force permanently. Operationally RIMGROUP is based on the concept of full retirement, defined as a person leaving the workforce and not re-entering it. Despite some considerable data difficulties, retirement has been researched in detail by the RIMA Unit, and a sub-model called RETMOD constructed which provides annual projections of full retirement by gender, age and income decile.

Based on these retirement rates, RIMGROUP calculates the number of people retiring each year from each account type and the aggregate value and components of their retirement benefits categorised by the type of retirement (disability or age).

Additional to the basic grouping by gender age and income, 12 retirement subgroups are created depending on type of superannuation coverage and age range at retirement, as there are usually significant differences in retirement income and taxation for such subgroups.

Retirement benefits are then allocated for each sub-group of retirees to six destinations. These are:

- Eligible Termination Payments (ETPs) dissipated with no impact on retirement income;
- ETPs invested in interest bearing accounts;
- ETPs invested in rollover accounts for those under 65;
- ETPs invested in shares or other assets with likely long term capital gains;
- Monies rolled over into allocated pension accounts; and

²⁸ But those permanently unable to work through disability are distinguished and treated separately.

- Benefits taken as superannuation pensions or monies rolled over to a complying lifetime annuity.

The allocation can be specified by the user.

Numbers of Social security recipients and payments to them are projected by the model both in relation to unemployment and sickness benefits during working life and age and disability pensions upon retirement. Thresholds and withdrawal levels associated with Social Security income and asset tests are modelled in detail, with the user being able to specify the type of indexation to be applied to the tests and to base levels of payment.

PARAMETER STRUCTURE

Parameters which vary by many of the attributes of gender, age, decile and account type are generated as files in a standard format and input through a parameter integration program (which also sets up the basic 99,600 records referred to above). It is expected that these parameters will be varied only infrequently by ‘expert’ users. Many other parameters of an economic or policy significant nature can be varied readily through a user friendly interface which handles variables which vary by time and/or account type. Examples of variables that can be input through the interface include the returns of various superannuation accounts and retirement investments, rates of compulsory superannuation contributions, inflation, rates of increase in average weekly earnings, various social security and taxation rates and the mode of indexation to apply to them.

BASE PARAMETER SETTINGS

These parameters are adjusted to historical rates, with a gradual transition over the forward estimates period to the following long term settings:

- 2.5 per cent per annum for inflation;
- 4.3 per cent per annum for growth of average full-time wages for a person of given age and gender²⁹;
- 6 per cent per annum for the long term bond rate;
- 7 per cent per annum for the average pre-tax return of superannuation funds (after expenses of managing funds but before tax and administrative expenses are deducted separately on a per capita basis); and
- effective tax rates on the earnings of superannuation funds of 3 per cent for defined benefit funds, 4 per cent for established defined contribution funds, 5 per cent for SG funds and 10 per cent for rollover funds.

In RIMGROUP we differentiate between the annual returns for defined benefit funds, defined contribution funds, industry funds and rollover funds. Currently these differences are set at 0.5 - 1.5 percentage points, with the defined benefit schemes having the highest rates and rollovers the lowest.

²⁹ The actual wage outcome is impacted by demographic and structural change such as the increasing proportion of work which is part time.