THE ADEQUACY OF AUSTRALIAN RETIREMENT INCOMES - NEW ESTIMATES INCORPORATING THE *BETTER SUPER* REFORMS

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- New Estimates Incorporating the Better Super Reforms

Abstract

Treasury's RIMGROUP model has been used to prepare new estimates of aggregate adequacy for both the whole Australian population and for subsets by gender and income. The analysis is based on the version of RIMGROUP which has been used for some of the projections of the 2007 Intergenerational Report and incorporates the Better Super Reforms.

While there is a body of published material on retirement income adequacy in Australia, most of this is of a hypothetical nature, projecting, for example, the expected replacement rate for an individual of given income and saving rate retiring in say 35 years time. The aggregate analyses presented here use a comprehensive cohort based model to cover the range of labour force experiences including part time work, differing retirement ages, differing total superannuation contribution rates by age, gender and income and the contribution of savings outside superannuation. The evolution of the retirement income system and changing replacement rates over time is explicitly shown. The estimates provided an update of those in a 1999 Colloquium paper by the author (and Julie Tinnion).

One aggregate model in the public eye is the IFSA 'Savings Gap' model. This paper provides alternative estimates which challenge whether an aggregate savings gap actually exists over the longer term and also raises issues about aspects of the IFSA modelling.

For the representative fifth decile of employment income, the current replacement rate is estimated at a moderate 52% but is projected to rise strongly to reach 60% by 2010 and 70% by around 2015. Replacement rates for men and women are found to be similar in the short term. Over the longer term the replacement rates for women are projected to exceed those of men.

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INTRODUCTION

For most Australians income in retirement will be funded from a combination of superannuation savings, other private savings and a full or part-rate Age Pension. Some will choose also to draw down on the equity in their home and perhaps to obtain some paid employment while primarily retired. In combination with the taxation system, these income sources will provide retirees with a particular level of spending capacity. Whether this spending capacity is 'adequate' has been the subject of considerable examination and debate over a number of years, including notably the examination by a Senate Select Committee (Senate Select Committee, 2002) and by industry groups such as ASFA (ASFA, 2004).

Over recent years many policies of government have modified both the superannuation and taxation arrangements for senior Australians in ways that have raised retirement incomes, both for those that have only compulsory levels of superannuation (the Superannuation Guarantee) and particularly for those who choose to save more within superannuation. Investment returns for superannuation funds have also been high, above long term averages. But some other trends, such as continuing increases in longevity, will tend to reduce average annual retirement incomes.

The superannuation system is almost universally regarded as strong, appropriately regulated and sound, with total assets more than doubling over the past 5 years to their current level of over $1000 billion (around the level of Australia's current GDP). Government policy changes, notably the co-contribution, abolition of the surcharge and the Better Super reforms have been welcomed and well received. Nonetheless the debate on adequacy continues[1].

While there is a significant body of published material on retirement income adequacy in Australia, most of this is of a hypothetical or cameo nature, projecting, for example, the expected replacement rate for an individual of given income and savings rate retiring in say 35 years time. The aggregate

[1] Adequacy is one of the Terms of reference of a current inquiry by the Senate Community Affairs Committee into the cost of living pressures on older Australians.

analyses published in this paper use a comprehensive cohort based model to cover the range of labour force experiences including part time work, differing retirement ages, differing total superannuation contribution rates by age, gender and income and the contribution of savings outside superannuation. The evolution of the retirement income system and changing replacement rates over time is explicitly demonstrated. The estimates provided an update of those in a 1999 Colloquium paper by the author (and Julie Tinnion).

The paper will review various measures of adequacy before presenting new estimates of aggregate adequacy for both the whole Australian population and for subsets by gender and income. The analysis is based on the version of RIMGROUP which has been used for relevant projections of the 2007 Intergenerational Report and incorporates the Better Super Reforms.

The estimates of this paper challenge whether a substantial aggregate savings gap actually exists over the longer term such as is claimed by the Investment and Financial Services Association (IFSA). It also directly considers and questions some aspects of the IFSA modelling.

MEASURES OF LIVING STANDARDS IN RETIREMENT

The adequacy of retirement incomes is usually assessed using either an absolute (or budget) framework or a relative framework using replacement rates. Comparison with a poverty benchmark is another relative measure. The level of the single full-rate Age Pension is also assessed relative to an objective benchmark (currently 25 per cent of Male Total Average Weekly Earnings). Total retirement income, including superannuation, is most often assessed using a version of a replacement rates framework.

The absolute or budget framework seeks to estimate the actual income required to live at a certain (budget) standard or lifestyle in retirement. A prominent example is research commissioned by Westpac Banking Corporation and ASFA (Saunders et al 2004), which has estimated how much it costs for Australians to have certain specified lifestyles in retirement. Such analysis was considered

in detail in an earlier joint paper by the author (Rothman and Bingham, 2004) and will not be discussed further here[2].

Replacement rates are defined as ratios of a person's income or spending power after retirement to that before retirement. The proposition underlying the replacement rate concept is that a person's standard of living in retirement should be a reasonable proportion of his or her standard of living during working life.

Treasury, as well as a number of key groups (including the Institute of Actuaries[3]), consider that a replacement rate measure based on a comparison of potential (net) expenditure before and after retirement is strongly preferable to a comparison of gross incomes before and after retirement. Some important groups (including IFSA (see later)), however, have based their replacement rates on gross measures. Gross measures may be misleading because of substantial differences in taxation and saving before and after retirement.

An expenditure replacement rate is an after tax measure which takes account of the drawdown of capital during retirement. Replacement rates based on income alone do not take account of draw-downs of capital. Consequently, such measures understate the contribution of retirement savings to the maintenance of living standards in retirement. This paper uses expenditure as the most useful and practical guide to standards of living. It is worth noting that expenditure or spending is not quite the same as consumption, because it is does not include the provision of (free) government services nor imputed rent on owner occupied housing.

Two replacement rate measures which have been commonly used and advocated are the ratio of average expenditure in retirement to the expenditure in the last year of full-time working life, and

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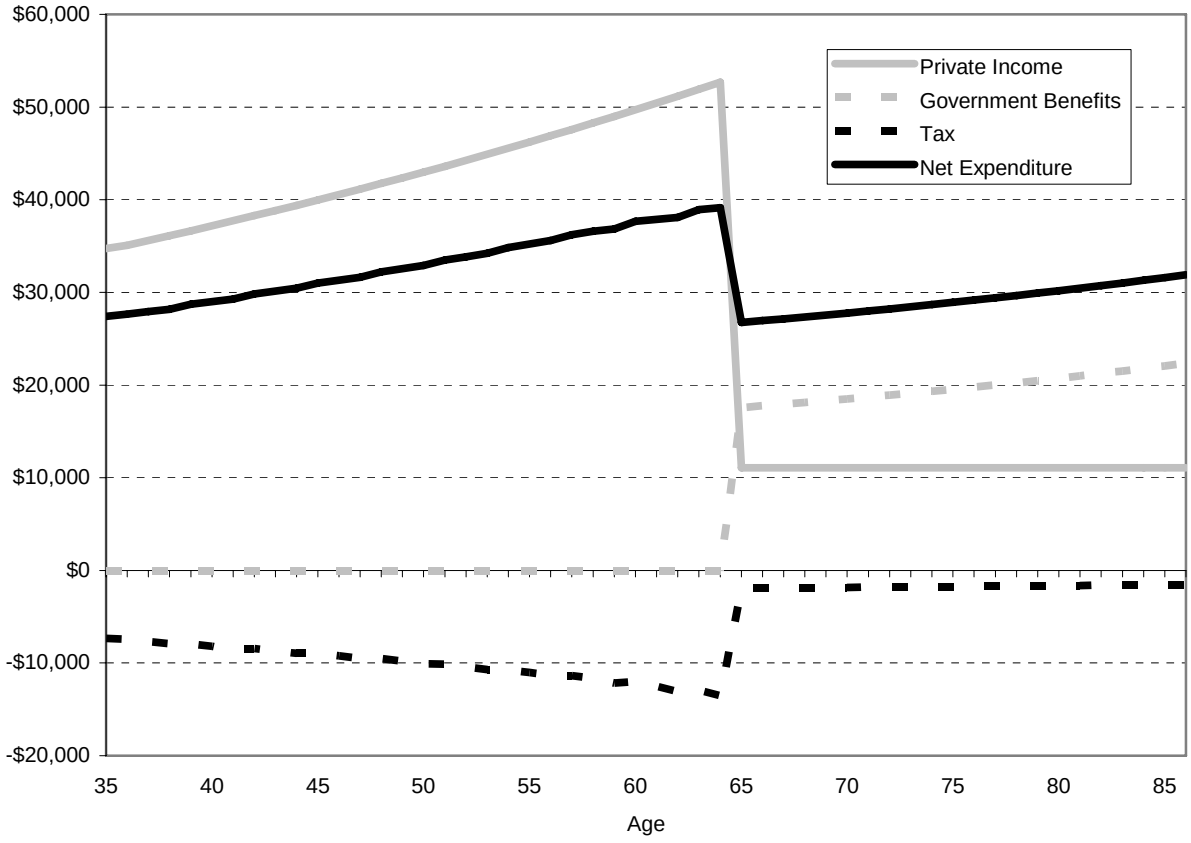
[2] Rothman and Bingham (2004) concluded that most baby boomers were likely to have retirement spending power equivalent to the 'modest but adequate' (MBA) budget from a combination of SG contributions and the age pension. More specifically, single baby boomers retiring from 2010 on were projected to do so.

[3] '*Superannuation and Standards of Living in Retirement – Modelling Assumptions*', Institute Of Actuaries Report to the Senate Select Committee Inquiry into Superannuation and Standards of Living in Retirement, September 2002

the ratio of first year retirement expenditure to the expenditure in the last year of full-time working life. A comparison of expenditure levels in the first year of retirement and the last year of working life can often be unrepresentative of standards of living across the whole of retirement, particularly where superannuation benefits are taken as a lump sum[4]. Chart 1 (reproduced from Rothman and Bingham, 2004) shows clearly the importance of the periods of retirement and working life over which averages are taken; neither working life expenditure nor retirement expenditure is constant in real terms.

Chart 1: Hypothetical expenditure projections for working life and retirement in real terms for a single male, benefits taken as a life expectancy pension



Alternative measures are the ratios of average expenditure in the first 5 (or 10) years of retirement to the average expenditure in the last 5 (or 10) years of working life. Such measures may be particularly useful for evaluating scenarios where a member phases down to retirement by working

[4] A significant part of the controversy concerning adequacy arises from differing approaches to such measures, rather than from the parameters used or calculations done within an agreed framework.

part-time for a period before fully retiring. These measures also have the additional benefit of symmetry when comparing pre and post-retirement expenditure levels.

The differences that can arise because of different measures are illustrated in Table 1 below. This table parallels a similar table in Rothman and Bingham, 2004, but has been revised to include the impact of Better Super and changes to personal tax scales. The replacement rates are consistently higher than in the earlier Table. The emphasis is on allocated pensions as these, while previously important, are likely to become even more prevalent after the introduction of Better Super. The drawdowns assumed leave minimal estate at average life expectancy as potential replacement rates are being estimated. Similarly when a lump sum is taken and kept outside superannuation it is drawn down evenly to leave a minimal estate.

Table 1: Various replacement measures for a single male with a working life of 35 years[5]

Salary (multiple of AWOTE)	Private benefit taken as:	Average over retirement / last year work*	First 10 years retired / last 10 years work	First 5 years retired / last 5 years work	First year retired / last year work
0.75	Allocated pension	80%	80%	75%	71%
	Lump Sum	78%	72%	67%	63%
1.00	Allocated pension	70%	69%	64%	60%
	Lump Sum	67%	61%	56%	52%
1.50	Allocated pension	60%	57%	53%	49%
	Lump Sum	56%	49%	44%	40%
2.50	Allocated pension	52%	49%	45%	44%
	Lump Sum	46%	38%	34%	32%

* Published analyses by Treasury have mostly used this measure.

[5] Only compulsory SG contributions are made for all hypothetical cases presented. Further assumptions include a 7% per annum nominal rate of earnings (after fees but before tax), wages growth of 4% per annum and inflation of 2.5% per annum. Retirement is at age 65 in 2042. Here, as elsewhere in the paper, 2042 represents 2042-43.

It is important to note that Table 1 assumes Superannuation Guarantee (SG) contributions only are made and that there are no savings outside superannuation. With these assumptions, clearly replacement rates fall as income rises, because at higher incomes age pension payments are lower (or nil), and some tax in retirement may be payable[6].

Whether or not any particular expenditure replacement rate is optimal is a matter for judgement. It seems generally accepted, however, that a replacement rate of less than 100 per cent will generally be appropriate. This is because (most) retirees do not face some major expenses, (eg home mortgage costs, the cost of raising children and the cost of commuting to and from work) which are more likely to be faced by people of working age. Services and products may also be available to retirees from government or private sources at a reduced cost. Different replacement rates will be appropriate for different individuals. The Government has not set an explicit benchmark replacement rate but has over recent years put in place numerous policies that improve replacement rates.

THE 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 some 113,000 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

[6] No tax in retirement is payable after the Better Super reforms where an allocated pension is taken and retirement is at age 60 or higher.

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 working[7]. 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). It has been used in preparing both the First and Second Intergenerational reports (Intergenerational Report, 2007). More details of the RIMGROUP model, the approach taken to modelling retirement and the current set of economic parameters used are in Attachment A.

ADEQUACY

In line with the discussion above, the main adequacy concept used is a replacement rate based on post retirement consumption expenditure compared with pre retirement expenditure. This includes income from all investments, all private pension payments (taxed or untaxed) and the age pension, and drawdowns from capital less any taxation payable. Current legislated policy parameters are used including the Better Super Reforms most of which started on 1 July 2007. In this aggregate analysis the comparison drawn is between the expenditure of retirees for the 5 years after pension eligibility age with income for the 5 years before age pension eligibility age. Given the structure of RIMGROUP in which new retirees are pooled with existing retirees, this definition makes it easier to do aggregate analysis, while distinguishing between cohorts which may have retired a decade or more earlier. The distinction is relevant because, in general, retirees do not maintain a living standard in retirement that is fully linked to average wages – while the age pension is linked to total male average wages, the mix of investments of retirees means that their privately sourced income, which often includes a high proportion of interest bearing investments and may have capital drawdowns, will generally not grow in real terms.

[7] But those permanently unable to work through disability are distinguished and treated separately.

What differentiates the aggregate from hypothetical analyses?

Most studies of adequacy use hypothetical analysis (eg Rothman and Bingham, 2004). The primary difference between aggregate and hypothetical analysis is the coverage in the aggregate analysis of the entire Australian population. Aggregate analysis covers the range of labour force experiences including unemployment and other breaks from the labour force, the range of retirement ages, and the varying superannuation coverage across the population including some schemes with better than SG rates of contribution, salary sacrifice arrangements, and member contributions. Additionally RIMGROUP estimates other financial savings at retirement and adds these to the pool of monies to be allocated and invested at retirement. RIMGROUP also allocates retirement investments patterns in a realistic way and allows for dissipation at retirement and drawdowns during retirement. These patterns are a function of gender and decile, although the data base is not definitive in all of these respects.

Also important in the aggregate analysis is the time dimension, whereby the experiences of those retiring now can be compared with those retiring in thirty or forty years - time is an important and automatic dimension of the analysis. Typically hypothetical analysis only looks at those retiring in 30, 35 or 40 years time.

The analysis presented below has the capacity to project changing replacement ratios for over 40 years into the future with realistic superannuation and other savings and assuming high drawdown of assets in retirement. It will be shown that as the SG system matures the projected replacement rates rise sharply.

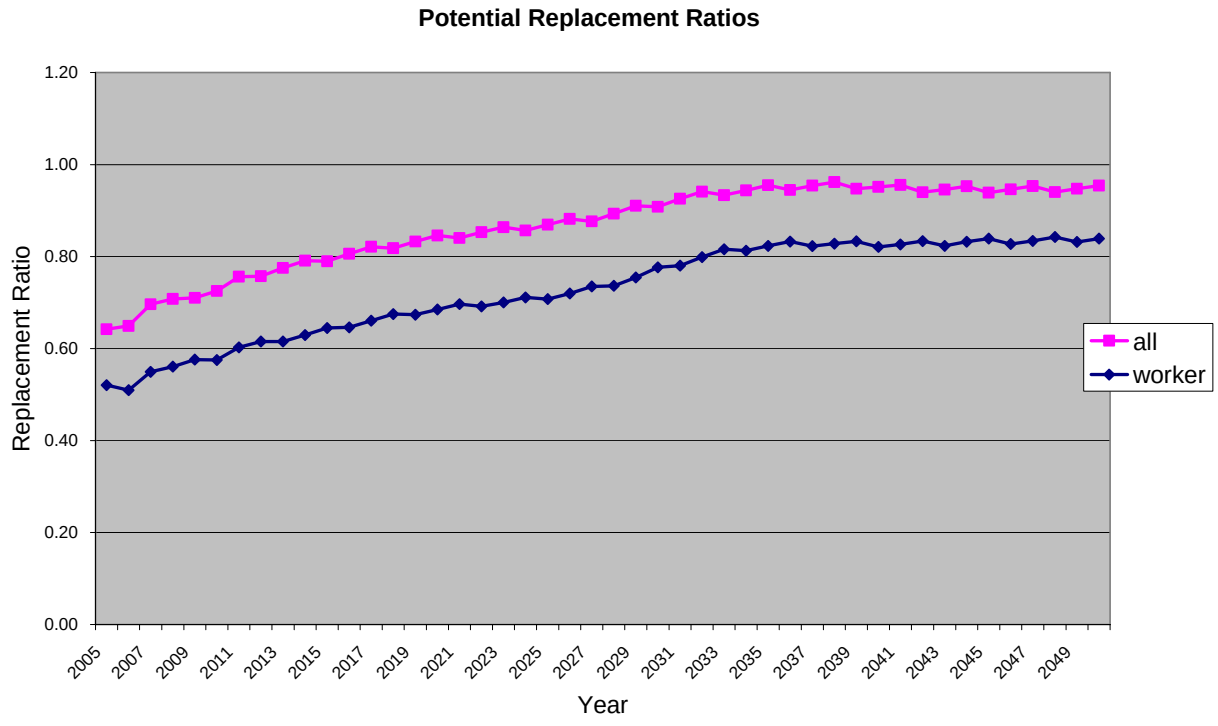
POTENTIAL AGGREGATE REPLACEMENT RATES

For an analysis of potential replacement rates it seems appropriate to assume that assets are largely drawn down in an annuity pattern over the person’s or couple's retirement. This measures the potential afforded by the retirement income framework. In practice, given uncertainty as to their longevity, most prudent people won't achieve this and as an operational compromise we have

assumed annuity drawdown of fixed interest deposits but only moderate drawdown of shares and allocated pensions, assuring some inheritance on average. Because of the increased incentive to take allocated pensions under the Better Super arrangements, a significant change over time in investment allocations at retirement is assumed, with allocated pensions becoming a much more popular way to utilise available funds at retirement. These assumed patterns together with a broad continuation of labour force and retirement trends are the basis of the aggregate results which follow.

Ratios of retirement expenditure over recent pre retirement expenditure are calculated for two groups: those who have had long term superannuation coverage, and the full population, adding in those who have had little or no superannuation coverage, including those self employed who have chosen not to contribute. For convenience we will call these groups 'workers' and 'all'. The time analysis of aggregate replacement ratios for these two groups is shown in Chart 2 below.

CHART 2: Potential Aggregate Replacement Ratios – Workers and Full Population, (all deciles)



Replacement ratios are projected to rise significantly over time: in the case of workers from a little over 50 per cent currently to 70 per cent around 2020 and over 80 per cent by 2032[8]. For the 'all' group the replacement ratios are estimated as already over 60 per cent and are projected to rise to over 80 per cent by 2016 on.

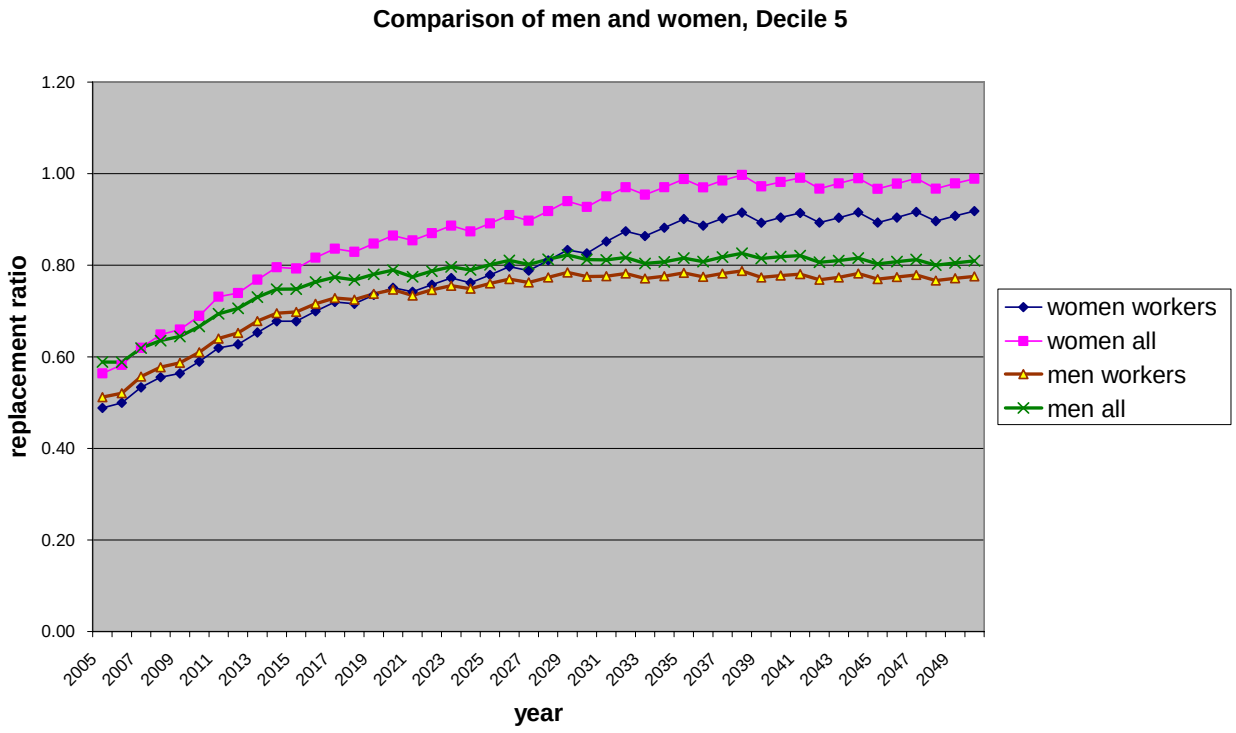
Gender

It is well established that women have markedly different labour force participation compared to men, with much longer periods out of the workforce, more part time work, and lower wages on average than men. All these patterns are built into the aggregate model together with projections which show a continuing increase in the work force participation of women. Also included are superannuation coverage and contribution rates for women. For women working as full time employees, coverage rates are slightly higher than those of men. However, given that a greater proportion of women are working part time, coverage for women employees overall at 91.8 per cent is lower than the corresponding 93.2 per cent rate for men (ABS, 2007). Chart 3 below shows relatively minor differences in the replacement ratios of women and men workers in the fifth income decile over the shorter term, with the women workers projected to have higher replacement ratios than men workers over the longer term. The maturing of the SG arrangements and of the co-contribution helps raise the replacement rates for women more than for men.

Of course these ratios are relative. In absolute terms the modelled pre retirement income of women workers in this decile is around 75 per cent of that of men, reflecting the composition of work undertaken and the much higher proportion of women working part time. Women also have significantly lower relative post retirement income from private sources. But age pension payments to both men and women are the same (for any given level of income or wealth), boosting the replacement ratios for women.

[8] 'Ripples' in Charts 2, 3 and 4 arise because of assumed indexation of income tax scales at 3 yearly intervals.

CHART 3: Potential Aggregate Replacement Ratios For Women



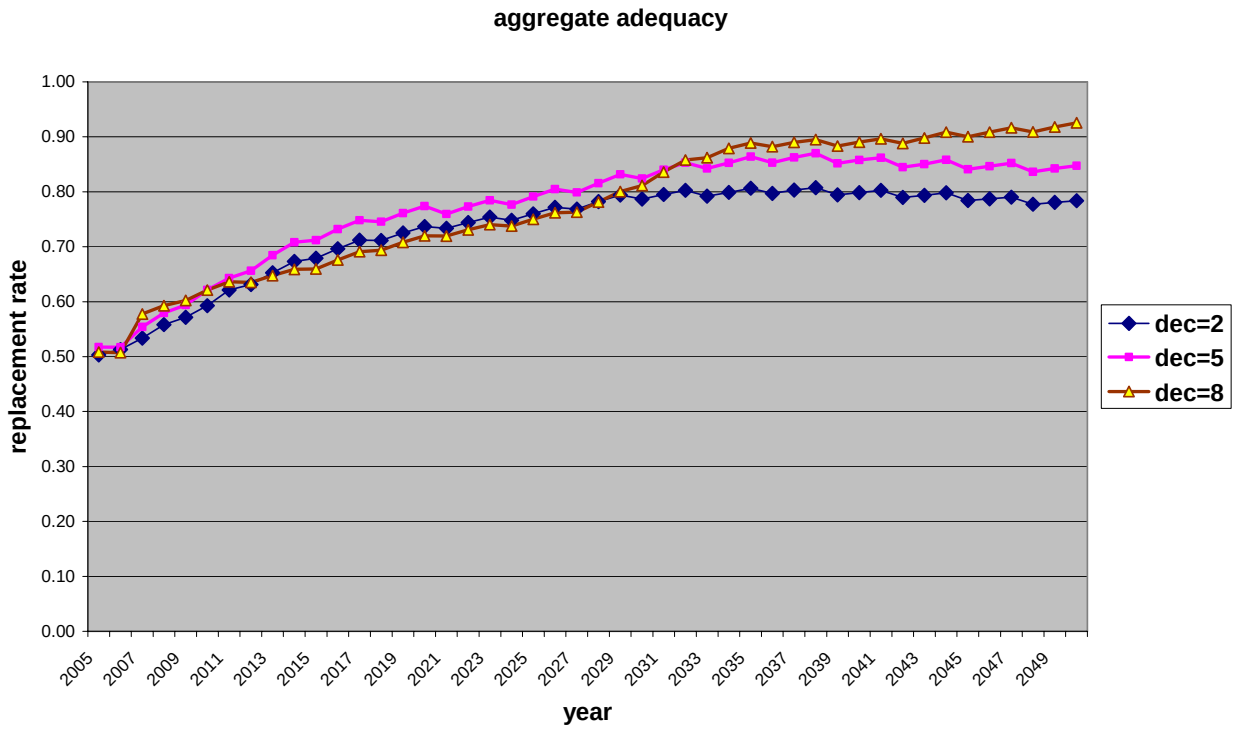
Initially the replacement rates for the 'all women' group is very similar to that of the 'all men' group. However the maturing of the SG arrangements and of the co-contribution, the continuing strong increase in workforce participation of women and the greater relative significance of the age pension for women leads to higher long term ratios for decile 5 women compared with men, for both the workers and all groups. It should also be noted that recent Census data shows that over 70% of people enter retirement as a member of a couple.

By Income Level

Also within the annuity drawdown framework it is interesting to analyse replacement ratios by income level which is done conveniently within RIMGROUP using the decile structure. This is done in Chart 4 below.

A number of interesting comparisons can be made. Firstly, the decile 5 ratios behave much the same way as the averages in Chart 2.

CHART 4: Potential Aggregate Replacement Ratios for Selected Deciles



The next comparison from Chart 4 is quite striking. The projected replacement rates for the deciles are quite close, perhaps surprisingly close. The replacement ratios for decile 8 are generally slightly higher than for decile 5 and decile 2, particularly in the long term and this may appear to contradict the standard hypothetical picture where replacement ratios drop as income rises (Table 1). There is no conflict, however, as this aggregate picture includes all forms of saving for the deciles, not just in superannuation, and importantly, also reflects the established pattern that actual superannuation contribution rates as a percentage of income rise with rising income (Rothman, 1996, Bingham 2003). Accordingly while SG only savings would give the replacement rate dropping as income rises, actual savings patterns do not.

The growing impact of the co-contribution is the likely explanation of deciles 2 and 5 overtaking decile 8 over the middle term. But as current policy is that the co-contribution is a fixed dollar amount, this effect becomes less significant over the long term. Future ad hoc changes to the maximum co-contribution level or taper ranges could change this result.

SENSITIVITY OF RESULTS

In the projection process many judgements need to be made on future participation rates, retirement ages, future expected returns of superannuation funds, future levels of voluntary contributions, saving outside superannuation, future tax scales, the drawdown patterns of the retired and so on. There is also sensitivity to government policies such as the co-contribution, and the Better Super policies.

Some parameter variations have immediate or almost immediate effect. The drawdown rates on investment are a good example of this. Reducing drawdown over the course of retirement by a plausible amount brings an immediate reduction of replacement rates of the order of 5 per cent with the impact decreasing slightly over time. Conversely if drawdowns were higher than in the base case, replacement rates as measured in this paper would rise. Similarly, government policies such as the Better Super have immediate effect, as can be seen on the earlier charts where 2007 (representing 2007-08) replacement rates are noticeably higher than in 2006.

Alternatively, some parameter variations may have substantial 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 higher returns generates about 4% higher replacement rates while 30 years of higher returns increases projected replacement rates by about

13%. Similarly higher voluntary superannuation contributions take a long time to show up in an aggregate analysis.

The replacement rate measure chosen may also impact on the value calculated. Rather than comparing 5 years after and before retirement, a 10 year comparison after to before was assessed. There was very little difference in the replacement rates calculated, with the 10 year calculation proving slightly higher over the longer term (as expected).

IS THERE AN AGGREGATE SUPERANNUATION SAVINGS GAP?

The projections in this paper indicate that replacement rates will be lifted by the Better Super reforms and continue to rise strongly reaching levels of 70% or more in the medium term, levels that are usually judged adequate by most commentators. The replacement rates here are higher than projected in the author's 1999 paper, despite longevity increasing faster than previously expected. Based on this analysis, once the SG arrangements are fairly mature, prospects are quite bright for future cohorts of retirees and there is no savings shortfall or saving gap.

The Investment and Financial Services Association (IFSA, 2003) have argued that there is a saving gap based on work by the actuarial firm of Rice Walker (R-W). A Superannuation Savings Gap is a measure of the current shortfall in national savings between two amounts:

- the national saving required to ensure "adequacy" in retirement; and

- the amount saved in the superannuation system, and estimated to be saved up to retirement, by (most of) the current workforce.

IFSA have chosen to represent any shortfall as a lump sum amount, though it could be expressed as an additional amount that needs to be saved on a per annum basis over the future working lifetime of the current workforce. IFSA initially estimated this gap at $600 billion but have noted that their estimate has fallen when revisited in 2006 (IFSA, 2006). The revised estimate is about $450 billion.

Basically the R-W modelling appears to be a cohort group model quite like RIMGROUP, but somewhat less comprehensive. For example, the analysis performed by Rice Walker does not make any allowance for people with incomes below 0.5 x AWOTE or above 2 x AWOTE, nor does it directly model the value of the age pension. The author notes that his understanding of the R-W model is based entirely on (limited) published information.

Nonetheless the current analysis challenges their results. To resolve this difference the author has attempted to use the R-W framework to assess the gap (if there is one) and to try and understand the factors that might lead to a different conclusion being drawn. There are numerous possible factors involved, including.:

- R-W uses a high gross measure of adequacy that exceeds 75% net for many income levels
- R-W tends to treat the age pension as a bonus rather than as an integral part of retirement income.
- They exclude savings outside super; and
- Use a relatively low earning rate, around 1 percentage point lower than used in the current analysis (which is itself at the conservative end of historical 30 to 40 year averages).

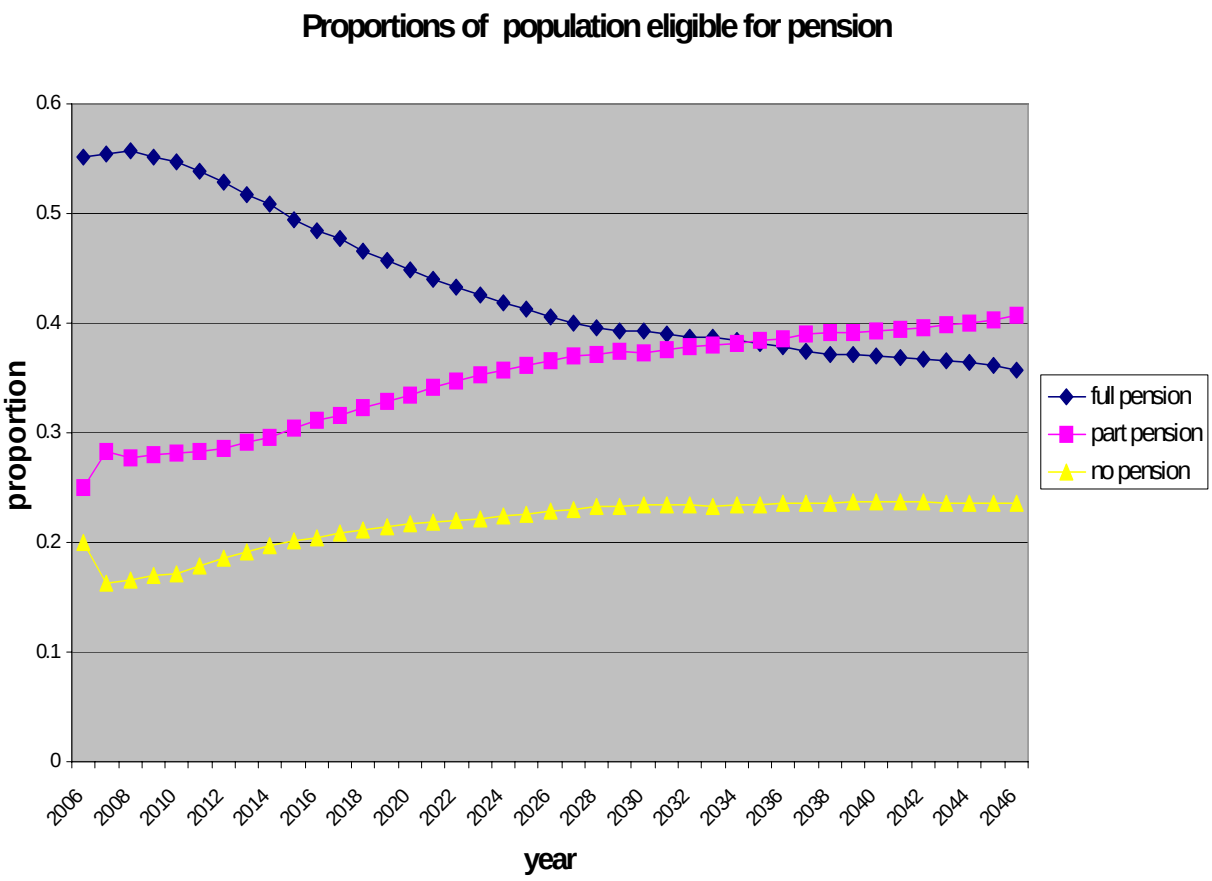
While the above factors tend to overstate the gap, R-W use an assumption of 15% total contribution rate (including 4% voluntary) which is significantly higher than the average contribution rates used in RIMGROUP.

While some of these factors are matters for judgement and precision is difficult because of data limitations, the critical problem that the author has with the R-W analysis lies in R-W's view of the role of the government age pension. and their unacceptably low estimate of the aggregate value of these pensions.

There seems very little basis for R-W or IFSA's contention that the government age pension should be regarded as peripheral to consideration of retirement incomes rather than an integral and important part of those incomes. In 1998 the Government legislated to link pension rates to Male

Total Average Weekly Earnings, guaranteeing that the single full-rate pension would be at least 25 per cent of MTAWE. Both the First and Second Intergenerational Reports ((Intergenerational Report, 2007)) show how critical future age pension costs are to future fiscal balances. The Second Intergenerational Report included projections of the proportions of the age pension population that are projected (using RIMGROUP) to receive a full, part or no government age pension. (Chart 5)

CHART 5: Coverage Projections for the Age Pension, All Deciles



The impact of the projected higher wealth and income of retirees over time is shown in the clear pattern of decline of full rate pensioners and in the projected rise in part-rate pensioners and non-pensioners in the Chart. Notwithstanding the higher wealth and income of retirees over time, the age pension remains an integral part of most retirement incomes and is here to stay

Turning to consideration of the R-W estimate of the aggregate value of the age pension, we note that the R-W report estimates the value of the age pension during retirement at $100-200 billion (in 2003 dollars), a value which the author believes to be grossly understated.

Suppose that the estimate of the age pension value was at the upper bound ($200 billion), in comparison to R-W's projected superannuation asset base for the cohorts in question of about $1,200 billion. The implication of this is that the report assumes that for every $1 in age pension paid to this cohort, the cohort will provide over $6 in private expenditure. Given that contribution rates appear to be too high, using R-W's framework we can re-estimate private saving in the R-W model at about $900 billion. And so their ratio becomes 1 to 4.5. But published Treasury analysis of hypothetical cases (eg to the 2002 Senate Inquiry) and the data underlying Table 1, shows that for a typical worker earning around AWOTE, retirement income is made up about equally from private sources and from the age pension ie about one to one not one to four to six. This suggests the pension contribution to the R-W aggregate should be about $700 billion higher, entirely eliminating the claimed gap. The pension component will be even higher following the halving of the asset test withdrawal as part of Better Super. As a check RIMGROUP has been used to produce a separate estimate of the net present value of the age pension for approximately the group covered by the R-W report; a similar figure around $850 billion is calculated as the aggregate value of the age pension. In the RIMGROUP case the future pension payouts for the given income ranges have been brought back to a net present value using a 6% discount rate.

Using the structure of the R-W projections, accepting their sensitivity analyses as valid, but adjusting for what appears to be a major flaw in estimating the value of the government age pension, the author's estimate of the savings gap is around zero, with the exclusion of savings outside superannuation and other factors overstating the gap broadly balancing the apparent overstatement of contribution rates. Dependent on assumptions made, after the Better Super changes, there may be a small savings surplus.

CONCLUSIONS

Most analyses of retirement income adequacy in Australia are of a hypothetical nature, projecting, for example, the expected replacement rate for an individual of given income and savings rate retiring in say, 35 years time. Aggregate analyses such as published here add value by covering the range of labour force experiences including part time work, differing retirement ages, differing total superannuation contribution rates by age, gender and income and the contribution of savings outside superannuation. The projected evolution of the retirement income system and changing replacement rates over time is also explicitly shown.

The analysis in this paper based on the RIMGROUP model finds that replacement rates are likely to be higher than projected in the author's analysis in 1999 using an earlier version of RIMGROUP. Longevity has increased faster than previously expected but earnings from superannuation funds have been very strong and a raft of government policies, including the co-contribution and abolition of the surcharge, has acted to improve retirement incomes. Starting from moderate levels of just over 50% currently, replacement rates will be lifted by the Better Super reforms (including improvements for those already retired) and the maturing of the SG arrangements. Replacement rates are projected to continue to rise strongly reaching levels of 70% or more in the medium term (ten years or so), levels that are usually judged adequate by most observers. Over the course of 20 to 25 years the projections indicate replacement rates for most groups of 80 per cent or more. None of these replacement rates assume any contribution to spending in retirement from reverse mortgages or part time paid work while primarily retired.

In the projection processes many judgements need to be made on future participation rates, retirement ages, future returns of superannuation funds, future levels of voluntary contributions, saving outside superannuation, future tax scales, the drawdown patterns of the retired and so on. Taken together with required simplifications to make the RIMGROUP model a manageable size, it should be clear that the projections are not unique or precise and have some necessary uncertainty

around them. Some indicators of the scale of this uncertainty have been addressed in the sensitivity section.

Notwithstanding such uncertainty, based on the analysis in this paper, once the SG arrangements are reasonably mature, prospects have been greatly enhanced for future cohorts of retirees and there appears to be no aggregate savings shortfall or saving gap. Over the medium to longer term, replacement rates for women are projected to exceed those for men (although absolute retirement incomes will remain lower). Higher decile cohorts, where the SG alone would not be enough, are seen to be making sufficient saving voluntarily, both within and outside superannuation, to provide similar (sometimes higher) replacement rates to those of lower deciles.

As these are strong conclusions, the author has sought to understand why this conclusion is so different to IFSA's position that there remains a substantial savings gap of around $450 billion dollars. The paper argues that the difference primarily reflects a major understatement in the Rice-Walker /IFSA projections of the significance and value of the government age pension - by round $700 billion dollars. Once such an adjustment is made to the R-W analysis there appears to be no aggregate savings gap and depending on assumptions, perhaps a small surplus.

As noted above, there is no unique definition of adequacy and numerous (plausible) assumptions have been made to arrive at these conclusions. Even where the aggregate picture is positive for future cohorts, individual circumstances will vary and different replacement rates will be appropriate for different individuals. Life expectancies continue to exceed past projections, allocated pensions are subject to market variations, and individuals may wish to consider additional savings (or delaying retirement) if they want their standard of living in retirement to keep pace with improvements in broader Australian living standards. Government policy innovations over recent years such as the co-contribution and Better Super reforms provide strong incentives to save more and to participate in the workforce for longer.

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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 eg 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 112,880 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 working[9]. 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; 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 RIM.

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 RIM 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;

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[9] But those permanently unable to work through disability are distinguished and treated separately.

- Monies rolled over into allocated pension accounts; and
- 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 112880 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 to the following long term settings:

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

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