

MODELLING THE SUSTAINABILITY OF AUSTRALIA'S RETIREMENT INCOME SYSTEM

George P Rothman

Retirement and Intergenerational Modelling and Analysis Unit

Department of the Treasury

Paper presented to the Twentieth Colloquium of Superannuation

Researchers,

University of NSW

12 & 13 July 2012

address: Department of the Treasury, Langton Crescent, Parkes, ACT, 2600

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

The author thanks his colleagues in the RIMA Unit and others who provided comments on this paper. The contributions of John O'Leary and Mandy Brown of RIMAU are particularly acknowledged for their work in integrating these RIMGROUP projections with Treasury's demographic, labour force and GDP projections.

The views expressed in this paper are those of the author and do not necessarily reflect those of the RIMA Unit, any Australian Government Department or the Government.

ABSTRACT: MODELLING THE SUSTAINABILITY OF AUSTRALIA'S RETIREMENT INCOME SYSTEM

George P Rothman, RIMAU, The Treasury

Treasury's RIMGROUP model has been used extensively over recent years to analyse and fine tune important policy changes to Australia's retirement income arrangements. Significant examples include the 2009 Age Pension increases and reforms, including the foreshadowed rise in age pension age, and the legislated increase in the Superannuation Guarantee to 12 per cent by 2019-20. RIMGROUP analysis has also been a significant input to all three Intergenerational Reports. In all these studies assessing long term sustainability using RIMGROUP projections has been an important part of the work.

It is clear that projections over a 30 to 40 year horizon are necessarily imprecise and involve many assumptions. This has been acknowledged in various papers by the author and others and has generally been addressed through sensitivity analysis, which examines how robust the results are to key parameters and assumptions.

This paper extends and updates that work, reviewing the impact on projected long term costs (and hence sustainability) of Australia's retirement income arrangements of key parameters, assumptions and policies including:

- long term superannuation returns;
- the rise in the Superannuation Guarantee from 9 to 12 per cent;
- the low income superannuation contribution;
- the reduction in tax concessions for very high income earners introduced in the 2012 budget;
- the uses made of accumulated superannuation at retirement;
- asset drawdown rates in retirement;
- pension levels and means tests;
- the increase in age pension eligibility age;
- demography, particularly participation and longevity; and
- rate of growth of GDP, particularly as influenced by productivity.

The paper also presents a long term projection of tax expenditures on the retirement income system – an area where long term projections are rare.

The paper finds that Australia is in a very strong position in relation to the sustainability of its retirement income arrangements compared with almost any other country in the world. However given the significant part of the government's budget involved, the increasing costs as the population ages and the many factors influencing sustainability, this relative strength should not lead to complacency.

MODELLING THE SUSTAINABILITY OF AUSTRALIA'S RETIREMENT INCOME SYSTEM

Australia's retirement income arrangements are well regarded internationally but, as is well known, are somewhat unusual. In most developed countries the common arrangement is for Social Security taxes to be levied on workers and employers which are used to pay unfunded (or largely unfunded) pensions to retirees based on past earnings. Clearly such arrangements can become unsustainable when the ratio of the number of retirees to the number of workers grows strongly.

The third Mercer global pension index continues to rate Australia's retirement income system very highly¹ (Melbourne Mercer, 2011). Australia has regained second place in the world's best pension systems with an index value of 75 in 2011 up from 72.9 in 2010; it is in the best B+ grouping and its sustainability score was the second highest in the survey. No nation in the study received an A grade ranking, which requires a score of over 80 points.

Projections of Australia's retirement income arrangements have been presented in all three Intergenerational Reports. (eg Intergenerational Report (IGR), 2010). These projections have all been based on Treasury's RIMGROUP model, which has also been used extensively over recent years to analyse and fine tune important policy changes to Australia's retirement income arrangements. Significant examples include the 2009 Age Pension increases and reforms, including the foreshadowed rise in age pension age, and the now legislated increase in the Superannuation Guarantee to 12 per cent by 2019-20.

The broad finding of the 2010 intergenerational report was that age and service pension payments are projected to rise by 1.2 percentage points of GDP, from 2.7 per cent in 2009-10 to 3.9 per cent of GDP in 2049-50. This rise is less than would result from purely demographic changes, mainly because of the increasing wealth and income of successive cohorts of retirees as Australia's superannuation arrangements mature and the increase in age pension eligibility age. Nonetheless, it is the second largest individual rise of the areas modelled in the Report, after Health which, with a rise of 3.1 percentage points, dominates. Notably, the projected rise is slightly higher than the projected rise in the Australian government's aged care costs which are projected to rise by 1.0 per cent of GDP.

¹ Produced by Mercer and the Australian Centre for Financial Studies, the 2011 Index ranks the pension systems of 16 countries according to their adequacy, sustainability and integrity.

It is clear that projections over a 30 to 40 year horizon are necessarily imprecise and involve many assumptions. This has been acknowledged in various papers by the author and others and has generally been addressed through sensitivity analysis, which examines how robust the results are to key parameters and assumptions.

This paper extends and updates that work reviewing the impact on projected long term costs (and hence sustainability) of Australia's retirement income arrangements of a wide range of key parameters, assumptions and policies including:

- long term superannuation returns;
- the rise in the Superannuation Guarantee from 9 to 12 per cent;
- the low income superannuation contribution;
- the reduction in tax concessions for very high income earners introduced in the 2012 budget;
- the uses made of accumulated superannuation at retirement;
- drawdown rates in retirement;
- pension levels and means tests;
- the increase in age pension eligibility age;
- demography, particularly participation and longevity; and
- rate of growth of GDP, particularly as influenced by productivity growth.

The paper also presents and discusses long term projections of tax expenditures on the retirement income system – an area where long term projections are rare. The sensitivity of these projections is also considered but less comprehensively.

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 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 working². Similarly migrants are pooled with others in the model and may dilute the assets of the group they join.

As noted above aggregate modelling based on RIMGROUP has been of considerable policy significance. More details of the RIMGROUP model, the approach taken to modelling retirement and the current set of economic parameters used are in Attachment A.

INCORPORATING RECENT CHANGES TO SUPERANNUATION AND AGE AND SERVICE PENSIONS

The version of RIMGROUP used for these analyses incorporates recent foreshadowed and legislated changes to superannuation and age pension arrangements.

Around 8.4 million Australians will improve their retirement savings because of the gradual increase in the superannuation guarantee from 9 per cent to 12 per cent by 2019-20.

RIMGROUP assumes that as the Superannuation Guarantee increases, wages, rather than profits, are adjusted, so that total remuneration in a given year is unchanged.

Also incorporated is new assistance to around 3.6 million low income Australians who currently receive little or no concession from the existing superannuation system. From 1 July 2012, the Government will contribute up to \$500 for workers with incomes up to \$37,000. These arrangements known as LISC mean such workers will pay no tax on superannuation guarantee contributions in 2012-13 and will continue to have their superannuation bolstered.

At the other end of the income range, the 2012 budget included a measure which reduces superannuation concessions for very high income earners. In the rest of this paper I will call this measure the ‘High Income Superannuation Equity Measure’ or HISEM. This measure starts in the financial year 2012-13, and requires those with adjusted incomes of \$300,000 and over to pay an additional 15% tax on concessional contributions. This brings their tax

² But those permanently unable to work through disability are distinguished and treated separately.

concessions on superannuation contributions to levels more in line with those given to average workers.

Also relevant are changes in the annual caps on concessional superannuation contributions. These will be \$25,000 for all ages in 2012-13 and 2013-14, with a much higher cap from 2014-15 onwards for those aged over 50 with balances under \$500,000, allowing them to 'catch up'; these caps are indexed³. The reductions in the superannuation co-contribution from 2012-13 are also incorporated.

Major changes to pension arrangements were incorporated in the 2009-10 Budget. The major relevant changes are:

- A significant increase in age pension payments of \$32.49 a week for single pensioners and \$10.14 a week combined for couple pensioners;
 - Together with this increase were changes to the income test whereby the pension taper rate for new pensioners would be 50% rather than 40%, as well as a reduction in the effective taper rate for income from employment for both continuing and new pensioners; and
- Gradually increasing the age for eligibility for an age pension beginning in 2017 so that this age reaches 67 in 2023.

More recently supplements are being added to pensions as compensation for cost rises coming from the introduction of carbon emissions taxes from 1 July 2012.

The latest detailed base results previously published are in IGR (2010); these incorporated the 2009-10 pension changes, including the foreshadowed increase in age pension age and some other more minor changes in the 2009-10 budget. Thus the significant additions in this version are the SG rise, LISC and HISEM. Other changes such as the limited higher cap from 2014-15 are also included. Some additional minor adjustments to RIMGROUP and updated benchmarking have also taken place.

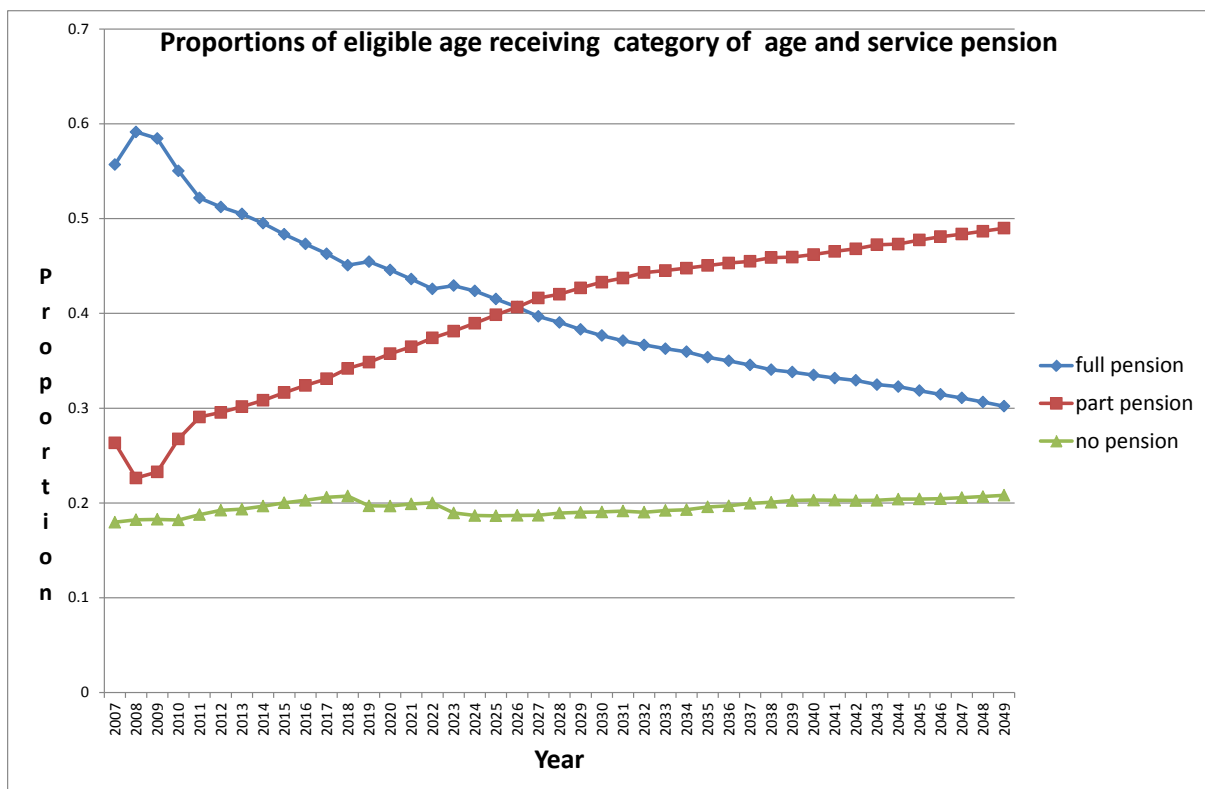
BASE RESULTS

³ Not each year but when wages indexation reaches the next \$5000 level; in 2014-15 the general cap is expected to be \$30,000 and the higher cap \$55,000,

Chart 1 shows some key results of the base case analysis. Notwithstanding a large number of changes to the superannuation and age pension arrangements, the results are quite similar to those in IGR 2010 and previous IGR's; the impact of key individual changes will be analysed below. The basic picture has not changed that successive cohorts of retirees will have higher levels of private wealth and income and this with the means tests will lead to the dominant form of age pension being a part pension rather than a full pension. Nonetheless the age (and service) pension) will remain an important contributor to retirement incomes for most Australians: even with a 12% SG the age pension remains important.

It is worth noting that while the proportion of eligible age not receiving an age pension remains around 20 per cent, many do not get an age pension for the whole of their retirement. Between age pension age and 70, the proportion without a pension will typically exceed 40% but with drawdown in retirement and successive cohorts living longer, the average over all ages is sticky at around 20 per cent.

Chart 1.



For convenience I have categorised these into three groups:

Demographic

Pension Policy settings and related parameters; and

Other – Contributions, Investment Returns, Productivity, Behaviour

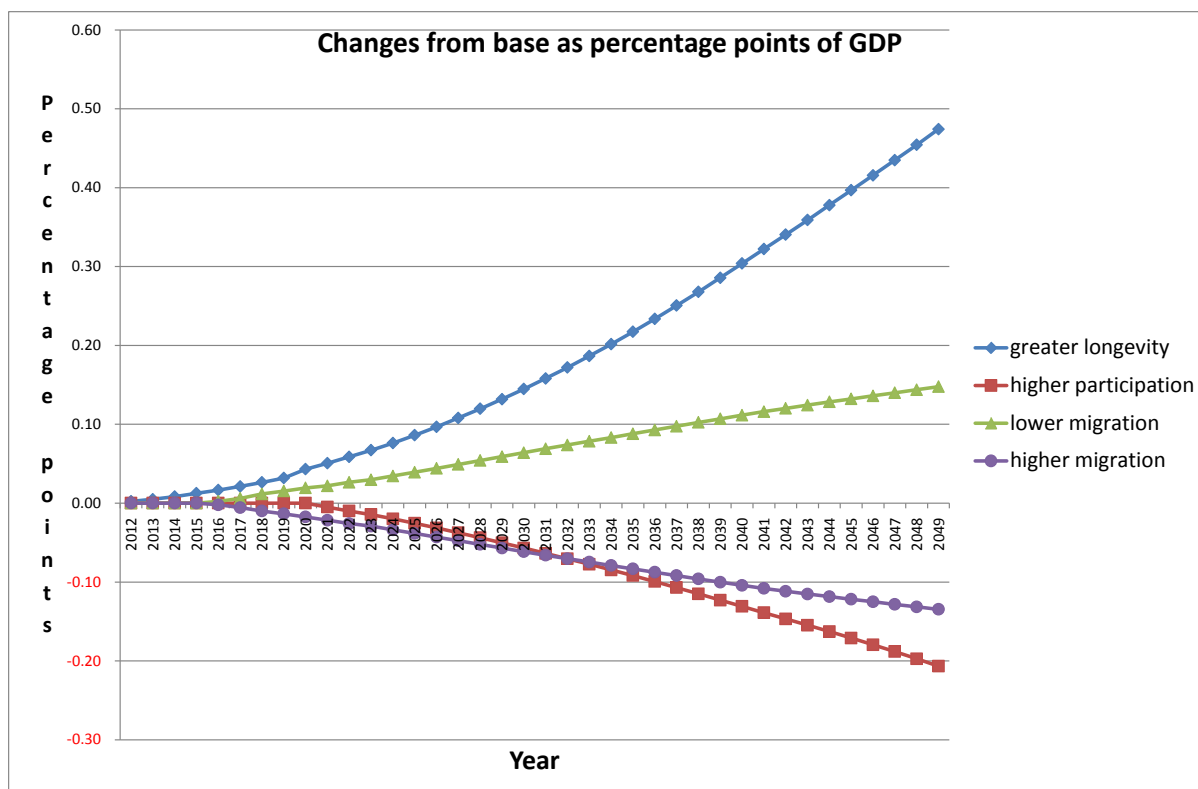
As we will see the strength of impact of reasonable departures from the base case varies very considerably and is not always fully aligned with our instincts or pre-conceptions.

Demographic

The demographic factors considered are immigration, longevity and participation.

The immigration variations considered here align with those considered in IGR 2010. The base scenario assumes steady net migration of 180,000 a year. Recent net migration has varied substantially from this figure but it continues to be a plausible long term average. Here we consider reasonable variations of 30,000 above or below this level. Migrants are on average younger than the overall Australian population and most are of prime working age. So lifting the level of migration increases GDP proportionately more than the increase in age pension; most of the additional migrants will eventually become age or service pensioners but not all within the projection period. Thus raising migration increases age pension payments by a little less than 1 per cent in 2050 but GDP is higher by 4.6 per cent, reducing the cost as a percentage of GDP by 0.13 percentage points. Conversely, reducing migration increases the overall cost of age and service pensions as a percentage of GDP. Charts 2 gives more detail over the projection period.

Chart 2: Impact of demographic variations on age and service pension as proportion of GDP



The Australian government bears most of the longevity risk for the Australian population. Government costs for major programs in Health, aged care and age and service pension are all markedly higher where longevity is greater and there is no first order impact on GDP. Clearly individuals will value improved longevity, particularly if their health levels hold up, but it largely the government that pays the bills; Appendix B of IGR 2010 illustrates this for a range of programs.

The results here are limited to age and service pensions and to improved rather than reduced longevity. All recent attempts to predict longevity improvement have fallen short of what has actually occurred. If longevity (life expectancy at birth) is varied to be (gradually) 3 years higher by 2050 for both males and females than the base case, (about 3.4% higher), then the projected cost of the age pension rises by 13% and the cost as a percentage of GDP rises by a substantial 0.47 percentage points of GDP. Again Chart 2 gives more detail over the projection period.

Participation in the labour force is the last of the key demographic factors considered. There have been increases in labour force participation over the past decade, particularly for women and at older ages (see attachment B). These trends and also increased participation as age pension age increases are already in the base projections. If additional average participation

over all ages can be encouraged to rise by a further 3 percentage by 2050, ie by about 5%, age pension costs in dollar terms are only marginally reduced (less than 0.5%) but because of the substantial increase in GDP, age pension in percentage points of GDP is reduced by 0.21 (or about 5.5%) ; again Chart 2 gives the change over time.

Pension Policy settings and related parameters

The pension policy and parameter factors considered here are the level of the age pension, age of eligibility for the age pension, the income and assets tests taper rates and the indexation of thresholds for both the income and assets tests.

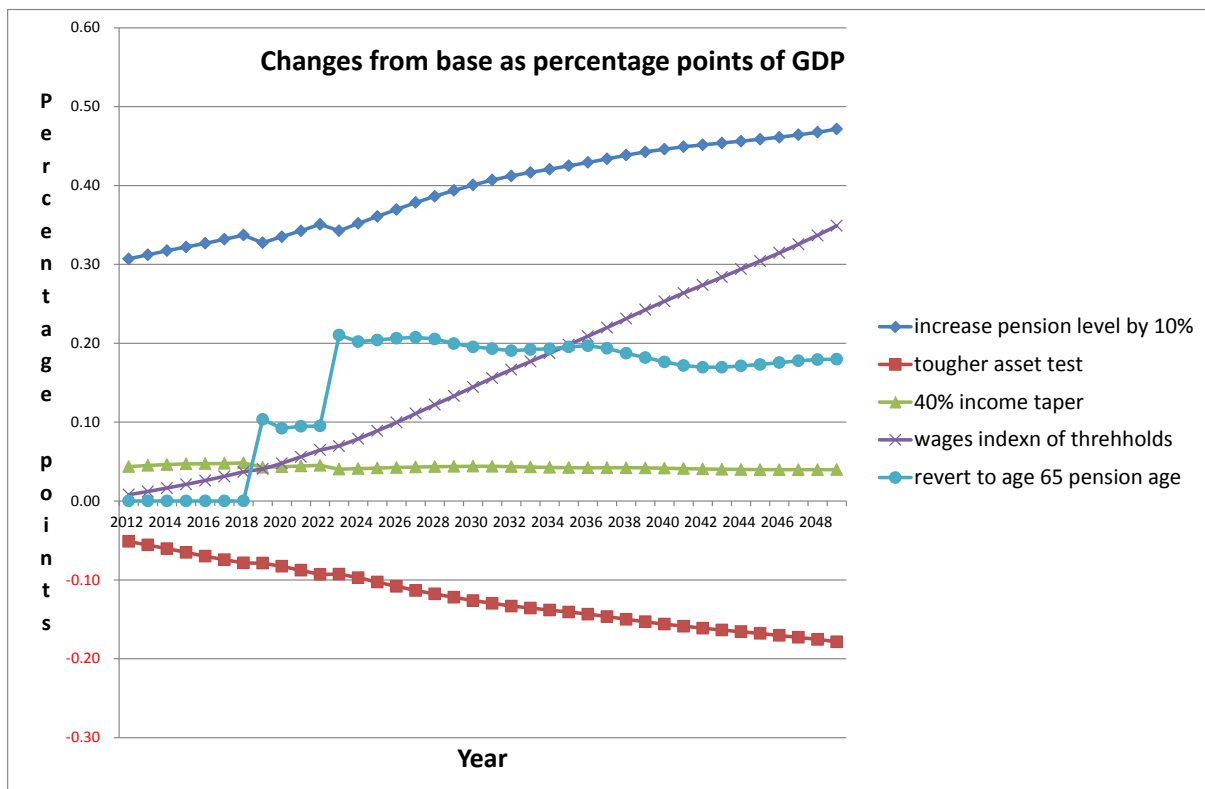
Consider first a hypothetical increase in both maximum pension and pension supplement by 10%, means tests being held constant and the same increase applying to both married and single pensioners⁴; the hypothetical increase flows on to other years because of indexation of the pension being primarily to wages. The results are not a simple 10% increase in pension costs; in fact RIMGROUP finds age pension costs rise by around 11.5% at the time of the change, further rising slightly over time to 12.5% in 2050. This is because, in the absence of any changes to the means tests, part pensioners get the same dollar increase as full pensioners ie a higher percentage increase. As shown in Chart 1 the proportion of part pensioners increases over time and therefore the extent of the increase over 10% rises. Chart 3 shows the time evolution of this possible variation; the projected value of the increase is 0.47 percentage points of GDP in June 2050. The see saw effect in the period 2016 to 2022 relates to changes in age pension age; RIMGROUP can only accept full year changes in age pension age whereas the reality is more gradual; hence this is an artificial effect.

As noted above, the 2009 pension changes included gradually increasing the age for eligibility for an age pension. From 1 July 2017 the qualifying age for age pension will increase from 65 years to 65 and a half years. The qualifying age will then rise by six months every two years, reaching 67 by 1 July 2023. These changes are incorporated approximately in the base; as noted above RIMGROUP can only accept whole years for age pension age and the eligibility age is increased to 66 in July 2019 and to 67 in July 2023. The next analysis presented here tests the significance of this by assessing a variation where the changes do not happen and age pension age remains at 65 for both men and women right throughout the projection period.

⁴ This is not what happened in the 2009 changes as additional changes were made at the same time such as the increase in income test taper rate to 50%.

When age pension age increases we expect retirement rates and participation to change; the directions are clear but the extent of changes is not. We have analysed participation rates by single year of age from the 2006 Census, concluded that some of the people retiring at age 65 were retiring because they could access the Age Pension at this age, and shifted this small peak of people to retirement at age 66 or 67. At the same time as age pension age increases, we have shuffled the participation rates of people along; thus people who are 65 increase their participation to the previous 64 year old level when pension eligibility age increases a year. The changes in participation rates flow through to the rest of the labour force model which underlies the base including impacting on unemployment, employment types and hours worked. Charts 6 and 7 in Appendix B set out how the participation rates of males and females are assumed to vary as age pension age increases. The analysis here **reverses** those changes.

Chart 3. Results from Variations in Pension Policy Settings and Related Parameters



The main results of the variation are seen in Chart 3. Firstly the changes to age pension age at 2019 and 2023 are clear. The result is a maximum variation in age pension cost of around 0.2 percentage points of GDP, peaking at 2023 and dropping slightly over the projection

period to 2050. In 2050 about 10% more persons would be eligible for an age pension but the pension cost only rises about just under 5%, with 5% more full pensioners and 6% more part pensioners. At ages 65 and 66 retirees have more income and assets than they have on average through retirement, so many eligible through age will be ineligible because of the means tests.

Three variations in relation to means tests are considered here. The first is a simple change to the income test taper range reverting to a 40% taper from 2012-13; this is the taper rate that applied for a period before 2009. No behaviour change is allowed for. The increase in age pension cost is quite low at an increase of less than two per cent. The number of full rate pensioners doesn't change as it is only income above the free area that is tested. The number of part pensioners rises slightly because some persons previously ineligible on income grounds now become eligible for a small pension. The changes are small because over time it is the asset test that becomes more dominant in deciding the level of payment to part pensioners.

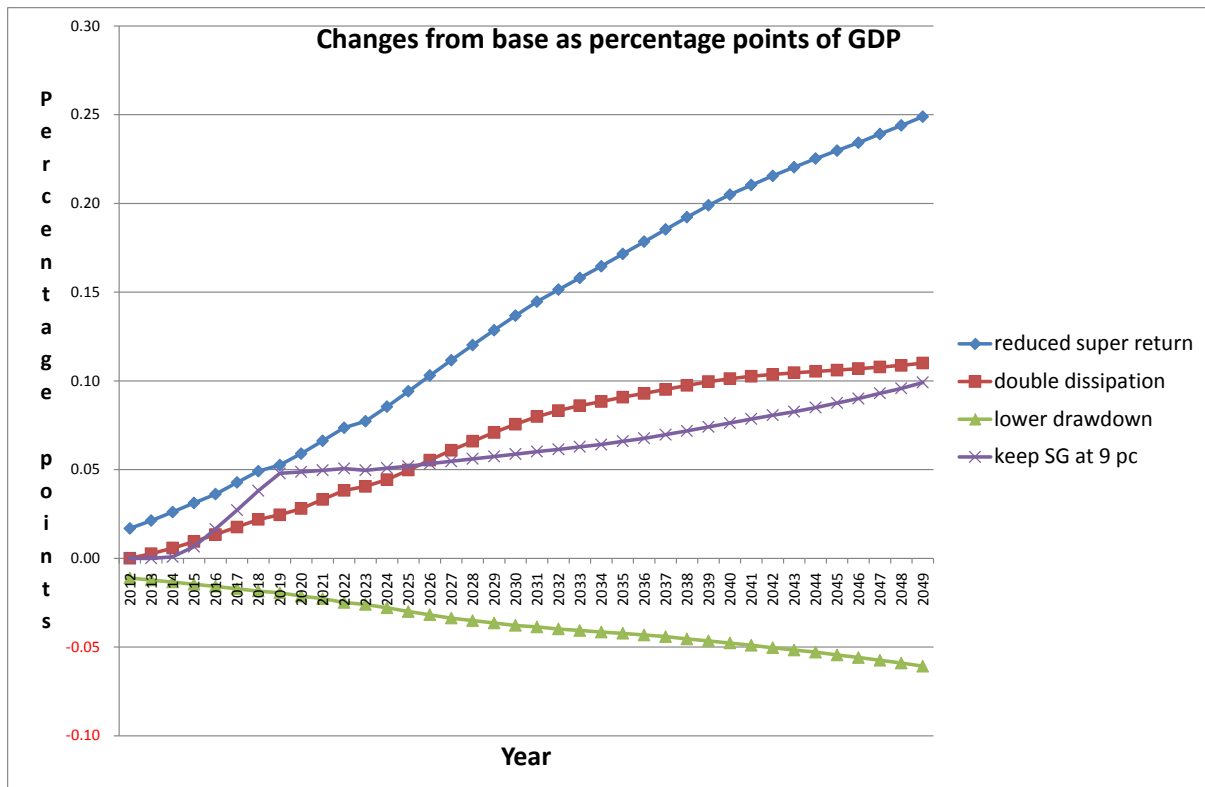
This is shown in a variation increasing the asset test taper from \$1.50 reduction per fortnight per \$1000 of assets to \$1.90, thresholds remaining unchanged. The projected impact is greater than the income test variation at around a 5% reduction in pension costs in 2050 or a 0.18 reduction in percentage points of GDP.

An even larger impact is found when considering a variation which indexes the thresholds for both means tests by wages rather than CPI which is the base case. The impact rises to an increase in age pension costs in 2050 of over 9% or 0.35 percentage points of GDP.

Other Variations – Contributions, Investment Returns, Productivity, Behaviour

A major superannuation policy which has been recently legislated is the increase in the SG from 9 per cent to 12 per cent over the period 2013 to 2019. As the government has announced, this will benefit many millions of Australians who, as a result of the policy, will have significantly more retirement savings. There is a cost to the Government in the accumulation phase through greater tax expenditure and there is some saving in pension payments. The level of pension saving has been analysed; at around 2.6% of pension costs this is a moderate impact (around 0.1 percentage points of GDP). Chart 4 gives the details calculated from reversing the policy out of the base.

Chart 4: Impact of other policy and behavioural variations



There are several reasons for the impact on pension payments being moderate. One set of reasons is the assumptions made in RIMGROUP. As noted above, RIMGROUP assumes that as the Superannuation Guarantee increases, wages, rather than profits, are adjusted so that total employee remuneration in a given year is unchanged. RIMGROUP also assumes (conservatively) that those with greater than SG contributions now, do not adjust their contributions til they need to eg someone with 11% contributions is assumed to make no changes to contribution levels til the SG reaches 11.5%. Thus the real impact may be somewhat higher than modelled by RIMGROUP.

LISC is included in the base run. A variation has been run which removes LISC. As might be expected this has only a minor impact on long term age pension costs or numbers of pensioners. There are two reasons: LISC does improve retirement incomes for those receiving it but almost all of these recipients will be full pensioners with or without LISC. Secondly, as with a number of other parameters in the superannuation arrangements, the \$500 level is not currently indexed and so is modelled as reducing in significance over time; in practice, the level and/or indexation of the payment is likely to be reviewed so the practical impact on age pension costs may be more significant.

Similarly, the impact of HISEM has been analysed. There is a small, essentially negligible, increase in base pension cost because of the inclusion of HISEM in the base run. Again the reason is clear. Those paying HISEM are at the highest part of the income spectrum and thus almost all receive no age pension. The inclusion or otherwise of HISEM has more significance on tax expenditures (see below).

The base assumes that long term investment returns of superannuation in RIMGROUP after investment fees, but before contributions and earnings taxes vary by fund type, with values between 6 and 6.7%, averaging around 6.5% (nominal). Analysis has been carried of a scenario with consistently lower returns of 1 percentage point across all account types. This has a significant projected impact on age pension costs: in 2050 these are projected to be about 6.5% higher (or 0.25 percentage points of GDP). Chart 4 gives the detailed build up over time. Accumulated superannuation is projected to be lower by about 12 per cent.

Two further sensitivity analyses have been carried out. These relate to behaviours.

RIMGROUP assumes that at retirement some funds are dissipated ie used for purposes other than investing to generate retirement income; these can be for sensible uses such a kitchen renovation or a new car. There are assumptions in RIMGROUP as to how dissipation varies by income decile and the level of accumulation. The sensitivity test carried out was to double the level of assumed dissipation while retaining the pattern by income decile. Doubling dissipation leads to projected increases in pension cost of about 3% in 2050, or around 0.11 percentage points of GDP. Chart 4 gives the detailed build up over time.

A related analysis is of the rate of drawdown of funds invested in account based pensions. In RIMGROUP at retirement, funds after dissipation are assumed to be invested in a range of investments including fixed interest, shares and account based pensions. The proportion invested in account based pensions is assumed to grow significantly over time as accumulations at retirement rise. The asset drawdown rate of account based pensions in the RIMGROUP base run is somewhat over the minimum requirement. The sensitivity analysis here is to assume the drawdown rate moves much closer to the minimum. This reduces pension costs by around a projected 1.5% in 2050 or around 0.06 percentage points of GDP. The level of impact is lower than the dissipation variation but only one investment in the portfolio has been varied, not all. Again Chart 4 gives the detailed build up over time.

Finally productivity assumptions may seem to be an important factor in pension costs as productivity impacts on the level of wages growth in RIMGROUP (margin over CPI) and

almost all of pensions payments are indexed to wages growth. So productivity does impact on the absolute level of pension payments; if long run productivity averages 1.2% per annum rather than 1.6% as in the base, pension payments are projected to reduce by about 12.5% in 2050). However this change also impacts on the level of GDP to very much the same extent. Thus pension cost measured as percentage points of GDP is essentially unaffected at a change of just 0.01 percentage points of GDP.

PROJECTION OF TAX EXPENDITURES

Estimates of tax expenditures are published by the Treasury on an annual basis usually in January; the latest edition is the 2011 Tax Expenditures Statement (TES) published in January 2012. Tax expenditures measure the concessions or benefits provided to activities or classes of taxpayers measured against a benchmark or standard which specifies the tax treatment that would apply in absence of any concession. The specification of the benchmark is important and not all groups in the Community agree on what the benchmarks should be. Naturally this paper follows Treasury's definitions as set out in the latest TES. As with most tax expenditures published, the projections here are on a revenue forgone basis ie the tax forgone because of the concessional tax applied, assuming behaviour is not changed because of the tax arrangements applying.

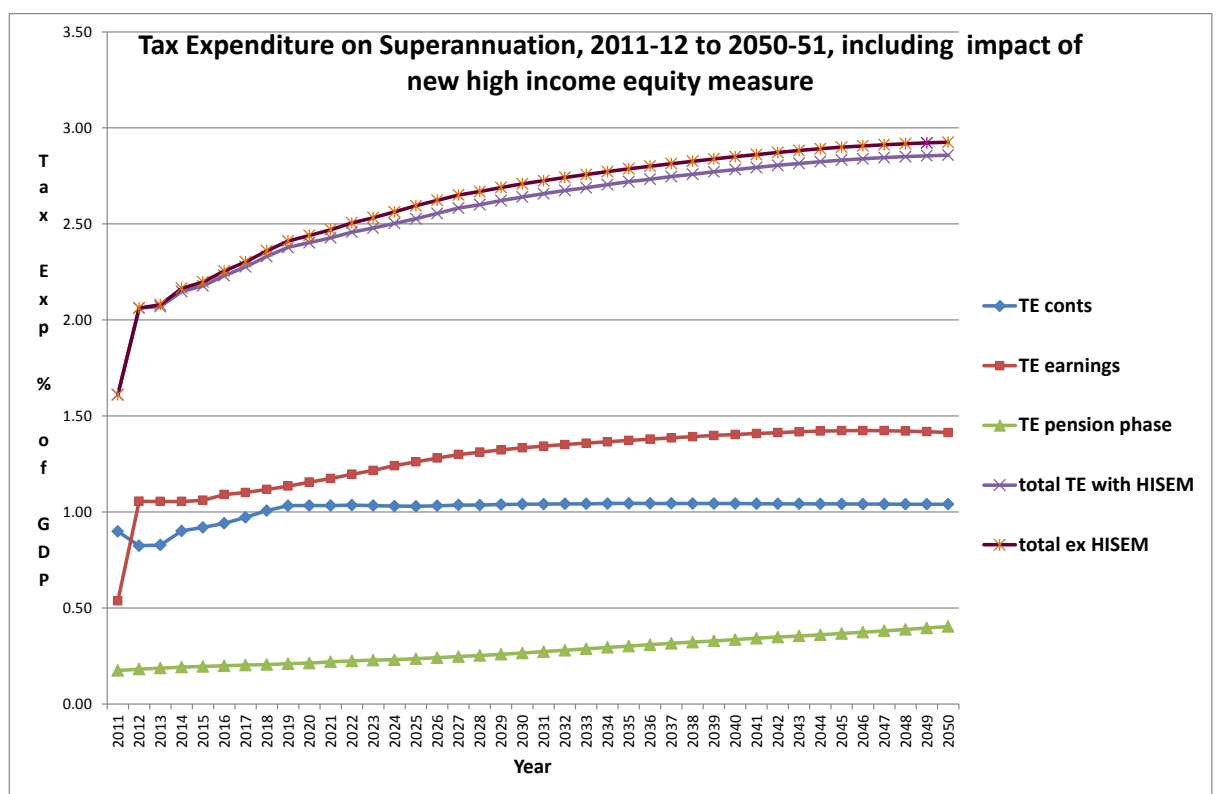
Superannuation is the second largest tax expenditure in TES 2012 and is estimated at \$30.2 billion in 2011-12 or just over 2 per cent of GDP. There are numerous components of this TE and not all are readily estimated using RIMGROUP, but the major ones are included in the RIMGROUP analysis and there is quite good alignment.

Chart 5 shows the projected time evolution of tax expenditures. There are a number of comments worth making.

- Tax expenditures are estimated or projected on an annual basis and are not reduced by long term age pension savings; thus policies which encourage more concessional contributions add to tax expenditures, and the related savings in age pension costs need to be accounted separately as in earlier parts of this paper.
- In practice Superannuation tax expenditures will vary considerably from year to year because of earnings fluctuations. In Chart 5 this is illustrated by the marked difference between 2011-12 and 2012-13. In RIMGROUP after history, earnings are assumed to be steady.

- The estimated 2012-13 figure in Chart 5 serves as a base level; this is about 2.06 per cent of GDP;
- Without the introduction of the High Income Superannuation Equity Measure, superannuation total tax expenditure is projected to grow to around 2.93 per cent of GDP in 2050, a growth of about 42% from the 2012-13 base level;
- With inclusion of HISEM, reducing concessions for high income earners, the level of total TE in 2050 is projected to be about 2.86 percentage points of GDP, a growth of 39% on the 2012-13 base level;

Chart 5: Projections of Superannuation Tax Expenditure



- The sources of growth in TE as a percentage of GDP are earnings in both the accumulation and retirement phases. As expected, and shown in Chart 5, tax expenditure on contributions is quite flat as a percentage of GDP, except where the SG is rising from 9 to 12 per cent; and
- These projected growths (including the SG rising to 12 per cent) are much lower than the projections attributed to Darren Wickham, a senior Australian actuary. The author has not found a copy of the paper setting out Wickham's projections but understands

they indicate a doubling of TE as a percentage of GDP. They have been quoted a number of times; for example in the Australian of 24 September 2011 :

'Darren Wickham, a principal at Mercer, estimated two years ago that the net cost to taxpayers of the superannuation system would double as a proportion of gross domestic product across 40 years. That is without taking into account the government's planned rise in compulsory superannuation from 9 per cent to 12 per cent.'

One major reason behind the difference in findings may be that Wickham did his projections with a base in the middle of the GFC when earnings were unusually low. Chart 5 shows the importance of earnings, which are typically around half of the total tax expenditure.

CONCLUSIONS

The base RIMGROUP runs indicate that Age and service pension costs are projected to rise from around 2.7 per cent of GDP now to around 3.8 per cent of GDP in 2050. Despite a number of changes in superannuation policies, this aligns quite closely with, but is slightly lower than the projections in the 2010 IGR published in January 2010. The underlying demography is the essentially the same and the rise in SG is one significant factor in containing cost and aiding sustainability.

However there are numerous plausible variations in key assumptions that could add additional pressure on age pension costs:

- Demographic trends are very important, with plausible longevity increases adding significantly to age pension costs. Additional significant pressure would come from lower net migration or lower participation while higher migration or higher participation than in the base case would reduce pressure.
- Pension policy settings are also very important, with an increase in maximum pension by, say, 10% leading to an increase in overall pension costs by up to 12.5%. The indexation of the thresholds by CPI rather than wages is also important; changing to wages indexation is projected to add around 0.35 percentage points of GDP to age and service pension costs in 2050. Reversing the increase in age pension age would add up to 0.2 per cent of GDP to costs; given improving longevity and world trends this reversal seems unlikely. Of the income and assets tests tapers, the asset test taper becomes more important over time as the income and assets of retirees rise.

- Comparatively, most other variations are somewhat less significant. However consistently reduced investment returns of one per cent are a realistic risk and are projected to increase age pension costs by around 0.25 per cent of GDP by 2050. Greater dissipation at retirement might be realistic if mortgages need to be paid off and this would add around 0.1 per cent of GDP by 2050, about the same level as is saved by the rise in SG to 12 per cent.

Both age pension outlays and superannuation tax expenditures impact on the government's fiscal balance, both over the short and long term. Current tax expenditure on superannuation overall is around 2.06 per cent of GDP. With the inclusion of HISEM, which reduces concessions for high income earners, the level of tax expenditure in 2050 is projected to be about 2.86 percentage points of GDP, a growth of around 39%. The projected growths presented in this paper (with or without HISEM, but including the SG rising to 12 per cent) are much lower than the growth in the tax expenditure projections attributed to Darren Wickham, a senior Australian actuary.

Notwithstanding the risks identified above, this paper agrees with the broader Mercer finding that Australia sits comfortably in the best group of international retirement income systems. In Australia, the superannuation and retirement income arrangements add strongly to funds available for investment, add to national saving, and the means tested age and service pension arrangements appear sustainable.

REFERENCES

Australia's Future Tax System, 2009, "The retirement income system: Report on strategic Issues", May 2009, Canberra

The Australian, 2011, Mike Steketee, 'World's greatest treasurer has mountains to climb at tax summit' <http://www.theaustralian.com.au/national-affairs/opinion/worlds-greatest-treasurer-has-mountains-to-climb-at-tax-summit/story-e6frgd0x-1226144269687>

Budget Papers, 2009, circulated by Wayne Swan , Treasurer, and Lindsay Tanner Minister for Finance and Deregulation, May 2009. Available at www.budget.gov.au/2009-10/

Budget Measures, 2012, Budget Paper no 2, circulated by Wayne Swan , Treasurer, and Penny Wong Minister for Finance and Deregulation, May 2012. Available at <http://www.budget.gov.au>

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.

Gruen D and Soding L, (2011), Compulsory Superannuation And National Saving, Economic Roundup Issue 3, 2011, The Treasury, Canberra. Available at <http://www.treasury.gov.au/PublicationsAndMedia/Publications/2011/Economic-Roundup-Issue-3/Report/Compulsory-superannuation-and-national-saving>

Intergenerational Report, 2010, 'Australia to 2050: future challenges' January 2010, Available at: http://archive.treasury.gov.au/igr/igr2010/report/pdf/IGR_2010.pdf

Melbourne Mercer, 2011 Australian Centre For Financial Studies, Melbourne Mercer Global Pension Index <http://www.globalpensionindex.com/pdf/melbourne-mercator-global-pension-index-report-2011.pdf>, October 2011

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

Rothman, G., 2011, Projecting the Adequacy of Australian Retirement Incomes - for whole of population and income and gender groups, Nineteenth Colloquium of Superannuation Researchers, University of New South Wales

Tax Expenditures Statement, 2011, The Treasury, Canberra, January 2012.

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 including the Better Super reforms of July 2007 and policy changes in all Commonwealth budgets up to and including 2012. Aggregate modelling based on this and earlier versions of RIMGROUP have been of policy significance over many years; for instance, in Gallagher (1995), Rothman (2011) and Gruen and Soding (2011).

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 June 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 working⁵. 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 very similar to the 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

⁵ 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;
- 4.14 per cent per annum for growth of average full-time wages for a person of given age and gender⁶; this reflects long term productivity growth of 1.6% pa;
- 5.5 per cent per annum for the long term bond rate;
- 6.5 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.

⁶ The actual wage outcome is impacted by demographic and structural change such as the increasing proportion of work which is part time.

ATTACHMENT B: MODELLED CHANGES TO PARTICIPATION OF 63 TO 67 YEAR OLDS AS AGE PENSION ELIGIBILITY AGE INCREASES

Chart 6: Participation rates of women aged 63-67 with Age Pension age increase

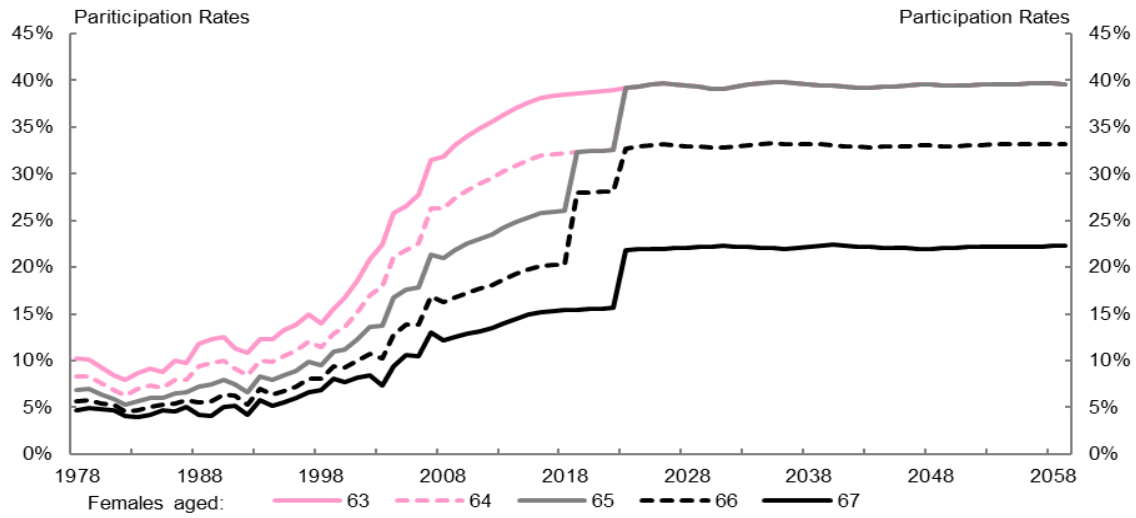


Chart 7: Participation rates of men aged 63-67 with Age Pension age increase

