

Abstract

This paper reviews the potential and actual analytic contribution of the products of the Retirement Income Modelling Task Force using a framework of the long term risks in retirement income policy.

The products reviewed include six policy models, demographic and labour force projection models, and four unique detailed datasets.

The policy issues analysed include national fiscal and economic risks as well as adequacy issues for individuals and families.

The paper demonstrates how existing models and datasets have proved very useful for analysing policy issues, including the development of the Government's new superannuation co-contribution policy. The paper concludes that the products of the Task Force will represent a major contribution to retirement income policy analysis, once the major aggregate projection model, RIMGROUP is finalised.

THE POLICY USE OF THE PRODUCTS OF THE RETIREMENT INCOME MODELLING TASK FORCE

Phil Gallagher

Director

Retirement Income Modelling Task Force

Paper prepared for the Third Colloquium of Superannuation Researchers
6-7 July 1995, University of Melbourne

Conference Paper 95/3
July 1995

The Retirement Income Modelling Task Force
c/- The Treasury, Parkes Place, Parkes, Canberra
Phone 06 263 3945, Fax 06 263 2724

The RIM Task Force is jointly sponsored by the Commonwealth Departments of the Treasury, Finance and Social Security.

The views expressed in this paper are those of the author and do not necessarily reflect the views of the Government or any of the sponsoring Departments of the RIM Task Force.

THE POLICY USE OF THE PRODUCTS OF THE RETIREMENT INCOME MODELLING TASK FORCE

**PHIL GALLAGHER, DIRECTOR,
RETIREMENT INCOME MODELLING TASK FORCE***

c/- The Treasury, Parkes Place, PARKES, ACT, 2600

Phone: 06 263 3945 Fax: 06 263 2724

**Paper prepared for the Third Colloquium of Superannuation
Researchers, The University of Melbourne, 6-7 July 1995**

Abstract

This paper reviews the potential and actual analytic contribution of the products of the Retirement Income Modelling Task Force using a framework of the long term risks in retirement income policy.

The products reviewed include six policy models, demographic and labour force projection models, and four unique detailed datasets.

The policy issues analysed include national fiscal and economic risks as well as adequacy issues for individuals and families.

The paper demonstrates how existing models and datasets have proved very useful for analysing policy issues, including the development of the Government's new superannuation co-contribution policy. The paper concludes that the products of the Task Force will represent a major contribution to retirement income policy analysis, once the major aggregate projection model, RIMGROUP is finalised.

**The Retirement Income Modelling Task Force is jointly sponsored by the Commonwealth Departments of the Treasury, Finance and Social Security. The views expressed in this paper are those of the author and do not necessarily reflect those of the sponsoring Departments.*

THE POLICY USE OF THE PRODUCTS OF THE RETIREMENT INCOME MODELLING TASK FORCE

PHIL GALLAGHER, DIRECTOR,
RETIREMENT INCOME MODELLING TASK FORCE*

PART ONE: INTRODUCTION

The Retirement Income Modelling Task Force is not responsible for policy development in the areas of superannuation. These responsibilities mainly lie in the policy areas of the Task Force's three funding Departments - the Treasury, Finance and Social Security. The Task Force's job is to improve the capacity of these areas to analyse policies. The main products of the Task Force are therefore models, new datasets, and new data manipulation tools. These are necessarily accompanied by policy analysis, good examples of how to use the products, as well as excellent training and documentation for those who will use them when the Task Force is dissolved. Many of the examples have been so relevant that they have had an important impact on Government thinking and decisions. The Task Force also receives a constant stream of enquiries from private financial analysts and community groups.

In order to assess the importance of the Task Force's policy analysis products, it is necessary to first explain:

- what are the issues in retirement income policy;
- the background to the creation of the Task Force; and
- the products of the Task Force.

The Issues in Retirement Income Policy - A Risk Framework

The RIM Task Force's Terms of Reference (Attachment A) require it

" To develop a capacity for modelling the impact of retirement income policies over the next half century . . . and to provide advice to departments and Ministers as required on policy options affecting retirement incomes."

The long term analysis requirement of the Terms of Reference reflects the long term uncertainty associated with financing retirement incomes. A **risk** framework is therefore an appropriate way of classifying the policy issues which RIM's products are to address. These risks are not problems now, but they could become policy problems in the future.

Financing retirement incomes can be achieved by:

- private saving during working life which can be encouraged and augmented by tax concessions;
- government income transfer programs (ie general revenue financing);

- private transfers; and/or
- public saving to meet future pension liabilities.

Australia has relied upon pensions financed by general revenue and is moving towards increased private saving encouraged and augmented by tax concessions. Private transfers (eg children directly supporting parents) are not common and public retirement funding has not been pursued, probably because of some distrust of politicians and bureaucrats and the unfortunate example of Menzies' National Welfare Fund.

The general revenue financed age and service pensions have been paid at a maximum rate (around 25% of AWE for a single pension) which is not linked to individual income during working life. The pension is also means tested. The augmentation of the pension by compulsory superannuation will transform Australia's retirement income security system into a retirement income maintenance system, while still providing an adequate income for those with low earnings before retirement.

The major risks in retirement income policy are its national sustainability and its adequacy for individuals and family.

The **national sustainability** risks include:

- **the fiscal risk** - that the Government may not have sufficient revenue to fund retirement incomes at the levels desired by the retired because of the demographic transition and because of trends to early retirement, or that the government may have difficulty in funding its concessions to superannuation now;
- **the economic and national saving risks** - that the economy may not grow sufficiently, and that Australians may not save and invest sufficiently, to provide for a comfortable retirement for a higher proportion of the population who are retired and who require private or government funded income support and services;
- **the intragenerational equity risk** - that current and future workers may not be prepared to save for their own retirement directly in financial assets (or indirectly via tax concessions for such saving) because they believe that the system is biased towards those on high incomes and/or that it actually makes those on low incomes worse off;
- **the intergenerational equity risk** - that current and future workers may no longer be prepared to fund the pensions, service and tax concessions demanded by the burgeoning lobby groups of the retired;
- **the behavioural risks** - that policies for financing retirement income may be undermined by:
 - insufficient labour force participation,
 - myopia towards saving for retirement and preferences for current consumption, and
 - inappropriate dissipation of savings before and during retirement.
- **the cost-benefit risk** - that strategies chosen for financing retirement incomes (such as tax expenditures for superannuation) are not worthwhile.

The individual or family adequacy risks can be classified as:

- **the poverty risk** of having a standard of living well below that of the general community;
- **the replacement rate risk** that real retirement income may be an unsatisfactorily low proportion of pre-retirement income because of poor investment or poor investment returns during working life;
- **the retirement investment risk** because of inappropriate product choices or returns, or the low drawdown of capital in retirement (eg because of attempts to maximise government assistance or to pass on an inheritance);
- **the longevity risk** of having all private capital dissipated a number of years before death.

This risk framework is one useful way of reviewing the potential contribution of the Task Force's products, in a more general way than would be provided by the its terms of reference.

Background to the Retirement Income Modelling Task Force

Attachment B provides a background to Australia's retirement income policy up to the announcement of the Superannuation Guarantee policy designed to extend employer superannuation coverage and to lift employer contributions up to 9% of salary by 2002, with an "envisaged" 3% employee co-contribution also flagged for some time in that period to raise total SGC contributions to 12% of salary.

As a result of the SGC proposal, the Senate Select Committee on Superannuation in April 1992 called for better modelling of the long term implications of the SGC. In response, estimates of the long term impact of the SGC on age pension outlays and national saving, generated using the National Mutual Retirement Income Policy Model (RIP), were included in *Security in Retirement*. Further in response to the Senate Committee, the Treasurer and the Ministers for Finance and Social Security announced the formation of the Retirement Income Modelling (RIM) Task Force, to enhance the Government's capacity to model the long term implications of retirement income policy, in May 1992.

Commencing operation in August 1992, the Retirement Income Modelling (RIM) Task Force is expected to finalise its work this year. The Task Force is financed on an equal share basis from existing resources by the Departments of the Treasury, Finance and Social Security.

The Terms of Reference of the Task Force (see [Attachment A](#)) require it to develop computer models which project the comparative costs and benefits of alternative retirement income policies over the next fifty years. These costs and benefits are to be modelled at the individual and at the population (aggregate) level and include the improvement generated by those policies in retirement incomes, their effect on taxation revenue and social security outlays, as well as the potential effects on national saving and workforce participation. The sensitivity of model results to key demographic, labour force, saving behaviour and economic assumptions is to be analysed. The models are to be fully documented and staff in the sponsoring Departments trained in their use.

Products Developed by RIM

The projection models of the RIM Task Force do not claim to predict or forecast the future. Rather they allow a user to explore differences in the effects of alternative policy across a variety of user specified scenarios about the future. Nevertheless, the models can show that some scenarios about the future are more consistent with the existing situation and recent trends than other scenarios.

The Task Force has chosen to develop three types of tax benefit models to address its terms of reference.

Hypothetical tax-benefit models cover one individual couple or income unit. Hypothetical models can cover a short period such as a week or a year (eg the Department of Social Security (DSS) Hypothetical Policy Effects Model) or project incomes, taxes and benefits over a much longer period.

- The RIM Task Force's **INDMOD and RIMHYPO** models take an individual or couple from work force entry to death. All relevant combinations of life events, government policies and retirement income sources can be modelled.
 - INDMOD is written in EXCEL4 and RIMHYPO is written in SAS. Both have user interfaces.

Group tax-benefit models disaggregate a population into a number of groups or cohorts and base their calculations on the means for these groups. Because the whole population is covered, group models can be used for costings to the extent that the group structure is sensitive to the parameters of the costing. For example, a coarse income distribution can lead to a poor costing of a new income test but give a reasonable approximation to aggregate superannuation contributions and earnings. Most costing spreadsheets could be said to be examples of short period group models. When group models are used for projections, insufficient or inappropriate group disaggregation can lead to inappropriate **pooling** of accumulations.

- RIM has substantially enhanced the **National Mutual Retirement Income Policy (RIP) model** (Haebich and Todd 1992, Rothman 1994, RIM 1994) which accumulates superannuation for each age-gender cohort in the population based on average weekly ordinary time earnings for that cohort. Superannuation assets are divided into employer, employee, personal and productivity (ie award) pools. New entrants to the labour market, such as migrants, gain a full share of the existing pool, thereby lowering the accumulation of existing beneficiaries. Those gaining SGC coverage for the first time share in the productivity pool. The unemployed are that way permanently and therefore share in no pools.
- **RIMGROUP**, which is still being developed by the Task Force, will base its groups on gender, birth year, and **career earnings decile** in order to allow for calculations to be done at the margin as well as at the mean. Those temporarily not working share in the assets of their career earning deciles. The account and sub-group structure of the model will be more extensive than in RIP and there will be far better statistics on the number of people affected by any policy in any year. The parameter database for this model has been and continues to be extensively researched. The model will be far better for distributional analysis than RIP.

Static Population microsimulation models can be used for costings, distributional analysis and macroeconomic analysis of the household sector. These models "age" populations for up to five years either side of a population survey by reweighting unit records to reflect the current population and labour force structure and by indexing incomes. Examples include the DSS Policy Effects Model (Gallagher and McDiarmid, 1993), PRISM.DIST (Henry and Wright, 1992) and STINMOD (NATSEM, 1995). The two static microsimulation models developed by the Task Force are:

- **MEMSUPER** which models superannuation contributions of employees and associated tax expenditures and general personal taxation. The model has been run from 1994/95 to 2005/6 in order to do a year by year and accruals analysis of the Government's member superannuation proposals. Components of national saving are calculated. The database for the models is a 30,000 record highly disaggregated summary file from the ABS Superannuation Survey of November 1993.
- **SEMSUPER** which models superannuation contributions of the self employed and associated tax expenditures and general personal taxation. Components of national saving are calculated. The model has been run from 1994/95 to 2005/6 in order to do a year by year and accruals analysis of the Government's self employed superannuation proposals. The database for the model is a 63,000 record file summarising all 1992/93 personal tax returns. The Australian Taxation Office (ATO) file gives superannuation details for the self-employed (and others) by fine income detail, individual years of age, taxation status, self employment status, gender and occupation. The data for the self employed are very high quality because the claimed deductible amount for a superannuation contribution is keyed by ATO staff. This allows us to readily reconstruct the actual contribution. The data on taxable income are also the best available. The database has also be used for general personal taxation costings such as the cost of the second tranche of the One Nation tax cuts.

In order to provide parameter input to RIMGROUP the Task Force has also developed:

- **POPMOD** which is a general demographic projection model for Australia in which the user can vary underlying demographic trends using EXCEL trending macros (Bacon, 1994) including life expectancy trends generated from the LIFE submodel;
- **a set of general trend analysis and smoothing macros** which Mr Bruce Bacon intends to release for general Treasury use (see Attachment C and Bacon 1995);
- **a new set of labour force projections for Australia** produced from the new Labour Force Status Model LFSMOD (see Attachment C and Bacon 1995);and
- a new general set of procedures for estimating career earnings deciles (CEPROC - see Attachment C); and
- a general **disaggregation of all existing superannuation assets** by gender, age, income and type of superannuation (Rothman, 1995).

The sponsoring Departments of the RIM Task Force are currently negotiating the commercial release of its models via the National Centre for Social and Economic Modelling (NATSEM) at the University of Canberra.

The **unique datasets** acquired by the Task Force include:

- The **highly disaggregated file of 63,000 records summarising all 1992/93 personal tax returns**. The ATO file contains superannuation and taxation aggregate amounts and person counts for the all tax filers by fine income detail, individual years of age, taxation status, self employment status, gender and occupation.
- A highly disaggregated file from the **ISC fund returns** data collection giving fund assets and financial flows by type of fund, sector, industry, total assets of fund and number of members.
- The **30,000 record highly disaggregated file from the ABS 1993 Superannuation survey** giving details of personal contributions, type of employer coverage, wage income, labour force details, retirement intentions, and details on previous and intended use of lump sum and rollover vehicles.
- A **10% sample of records from the DSS pensions and benefits masterfiles** giving the financial details on private incomes, assets and DSS payments.
- Cross-classified data on the distribution of private sector superannuation contributions and assets from four private companies (see Brown 1994) and a new collection of information on public schemes (see Rothman 1995).

The Task Force has also developed considerable expertise in analysing the unit record files of the 1981, 1986 and 1990 **ABS Income and Housing Surveys** which give extensive information on individual and family incomes, labour force status (current and in previous year), educational status and other personal attributes. These files are often the major means for disaggregating aggregates from other sources across population groups. Although the Task Force is the only user of these files within Treasury, most social policy Departments and universities have users.

PART TWO: USES OF RIM PRODUCTS FOR RETIREMENT INCOME POLICY ANALYSIS

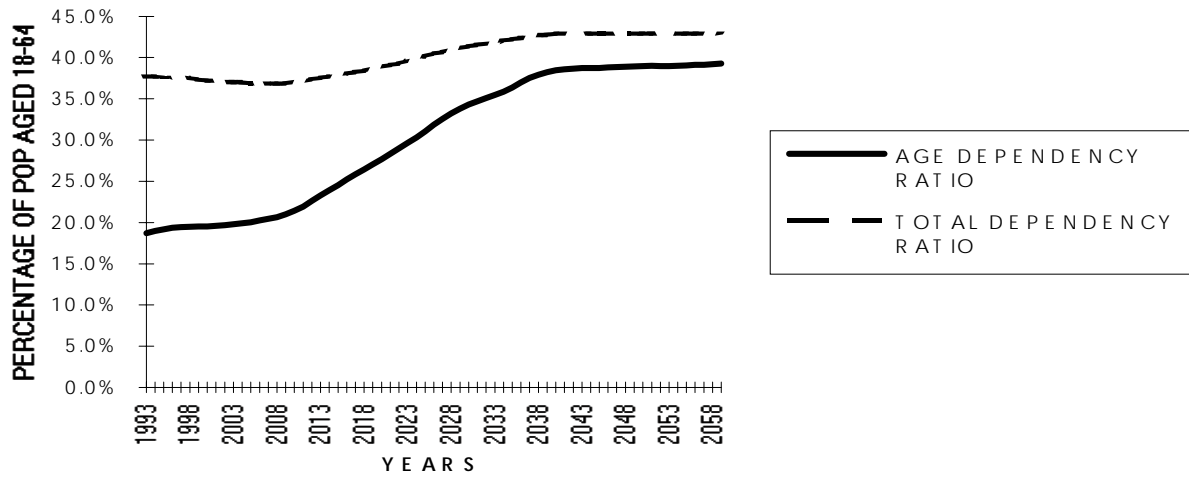
A: Sustainability of National Retirement Income Policy

The Fiscal Risk

The RIM population projections and labour force projections provide necessary background on the extent of the demographic and labour force transitions underlying long term concerns about the viability of general revenue funding for aged pensions and tax concessions.

Demographic Projections: Graph 1 shows the age and total dependency ratios (using age 17 as the cutout for youth dependency). The age dependency ratio increases from 18.7% in 1993 to 31.1% in 2025 to 39.3% in 2059. The total dependency ratio is projected to rise from 37.6 in 1993 to 40.1% in 2025 to 43.0% in 2059.

GRAPH 1



In Australia, each aged person costs all Governments 2.3 times the cost of a young person. For the Commonwealth Government the ratio is 4.1. Therefore in Australia the ageing of the population will significantly increase costs to governments, with the Commonwealth needing to substantially increase outlays.

TABLE ONE

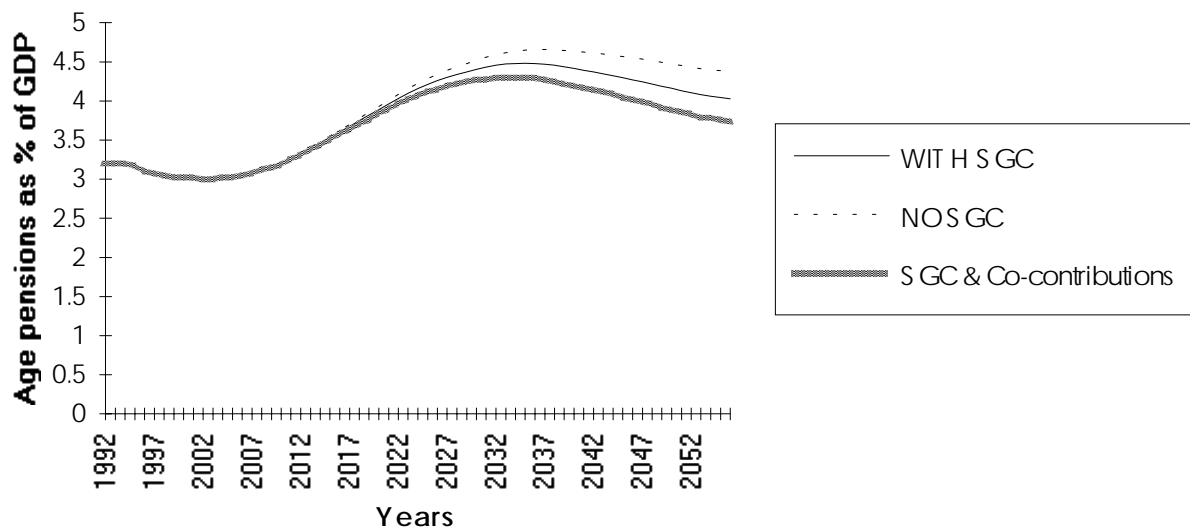
OUTLAYS PER CAPITA (DCSH 1990)

	STATE GOVERNMENTS	COMMON- WEALTH GOVERNMENT	COMBINED	RATIO TO YOUNG
	(Per Capita Costs \$1988)			
Children and Dependent Students	\$1,903.50	\$1,730.90	\$3,634.30	100%
Persons of Workforce Age	\$369.70	\$1,559.40	\$1,929.10	53%
Dependent Aged	\$1,318.60	\$7,082.10	\$8,400.60	231%
	Source: DCSH 1990			

Impact Of The Aged On Budget Balances: The RIM Task Force projects expenditure on age and service pensions rising from 3.2% of GDP in 1994/5 to 4.48% in 2035 under the employer SGC policy. If the employer contribution under the Superannuation Guarantee policies had not been introduced then outlays would have increased by a further 0.17% of GDP to 4.65% of GDP in 2035. The Government's new member and government co-contribution measures are projected to reduce age pension outlays to 4.30% of GDP in 2035. The reduction in age pension outlays from 4.65% to 4.30% of GDP would be equivalent to a reduction in outlays of \$1.7 billion in 1995/96. The modelling results are shown in Graph 2. The SGC and the co-contributions policy are unlikely to make an appreciable difference until around 2015.

GRAPH 2

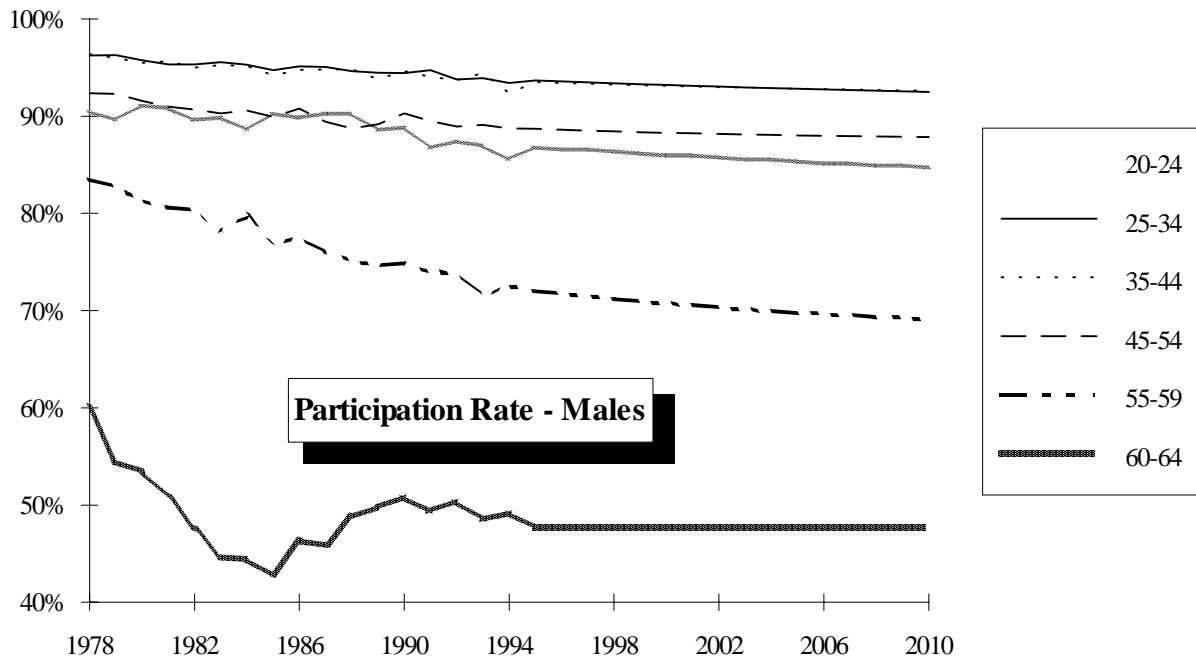
ONE PROJECTION OF THE EFFECT OF THE SGC ON AGE PENSION OUTLAYS AS A PERCENT OF GDP



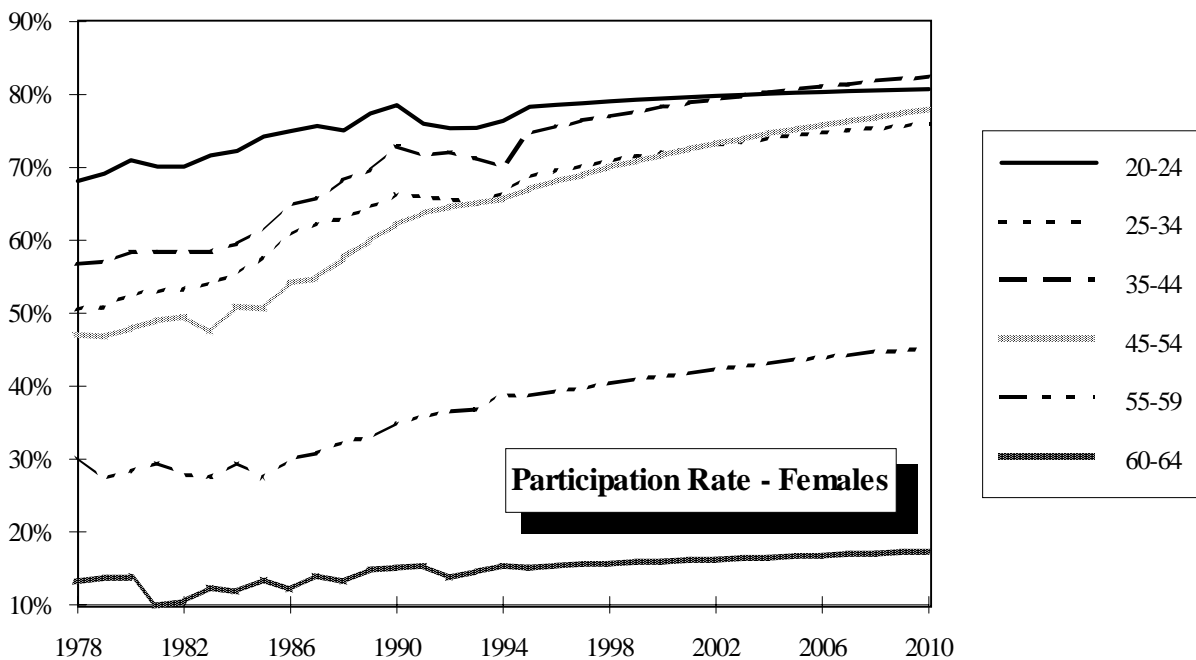
The extent to which superannuation accumulations provide an offset to age and service pension outlays very much depends on trends to early retirement. The decline in the labour force participation of males between 50 and 64 raises a variety of concerns.

Labour Force Participation: Mr Bruce Bacon's analysis of labour force trends to 1994 has confirmed the trend towards early retirement among males (Graph 3) and the increased labour force participation of females (Graph 4). These trends are projected to continue.

Graph 3



GRAPH 4



Dr George Rothman (Rothman and Bacon 1994) has extensively tested the sensitivity of RIP aggregate projections of components of national financial saving to plausible demographic and

labour force scenarios. He has found that the projections are far more sensitive to assumptions about economic growth, fund earning rates and the savings offset used.

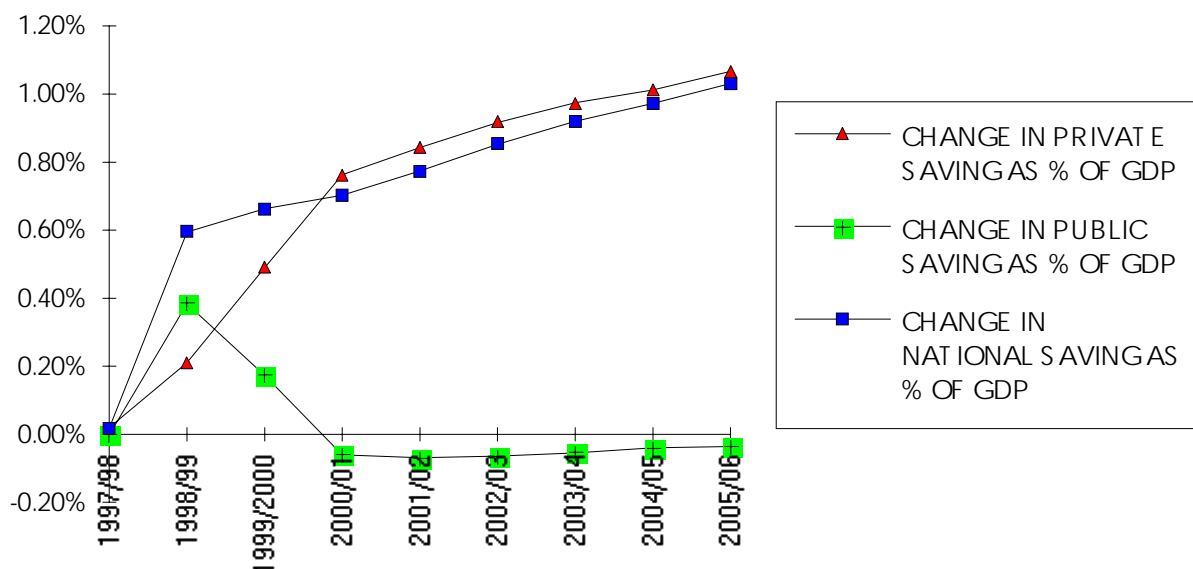
Nevertheless, the marked trend for males aged 55-59 to retire early raises issues about preservation age and the potential inappropriate use of lump sums (i.e. the behavioural risk of dissipation). The Task Force hopes to further research these issues using data from the ABS Survey of Retirement and Retirement Intentions, 1994.

Medium Term Analysis of the Fiscal Balance: The RIP model is not sufficiently accurate to cost policies in the medium term because it bases its calculations on the mean for each age-gender cohort. The highly disaggregated databases of MEMSUPER and SEMSUPER are the best available for short and medium term costings of proposals for increasing member superannuation and linking government tax rebates (or outlays) to the level of personal contributions and the contributor's income. Unfortunately no similar micro datasets exist for employer contributions (although brown 1994 provides cross-classified data).

Graph 5 presents an analysis of the components of national saving arising from the Government's new co-contribution policy for employees (Willis, 1995) whereas Graph 6 presents a similar analysis for the self-employed co-contribution policy. The two analyses are combined in Graph 7. The member analysis assumes that 18% of employees currently not making member contributions (but with employer superannuation support) gain member superannuation each year from 1997/98 to 2000/2001 and that 3% gain member contributions in the next two years. The analysis for the self-employed assumes 2% additional take-up of superannuation contributions by the self-employed from 1997/98. Both analyses assume that new personal contributions and the government co-contribution would be offset by a 30% reduction in other saving or by an increase in indebtedness. Both analyses take into account the fiscal offsets from not proceeding with the second tranche of the *One Nation* tax cuts.

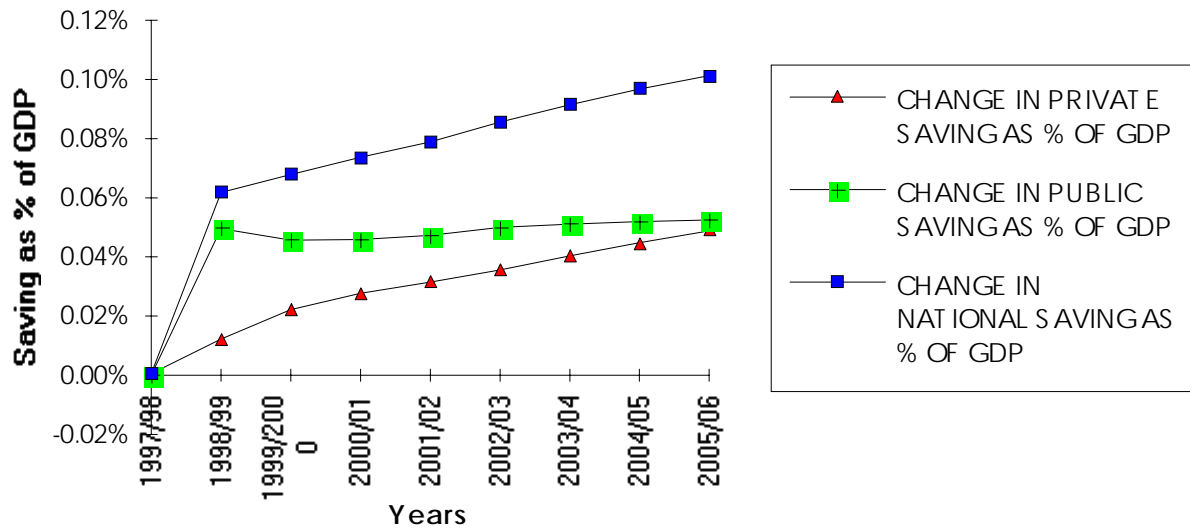
Graph 5

EFFECTS OF MEMBER & GOVERNMENT CO-CONTRIBUTION PROPOSAL ON NATIONAL SAVINGS - MEMSUPER ESTIMATES



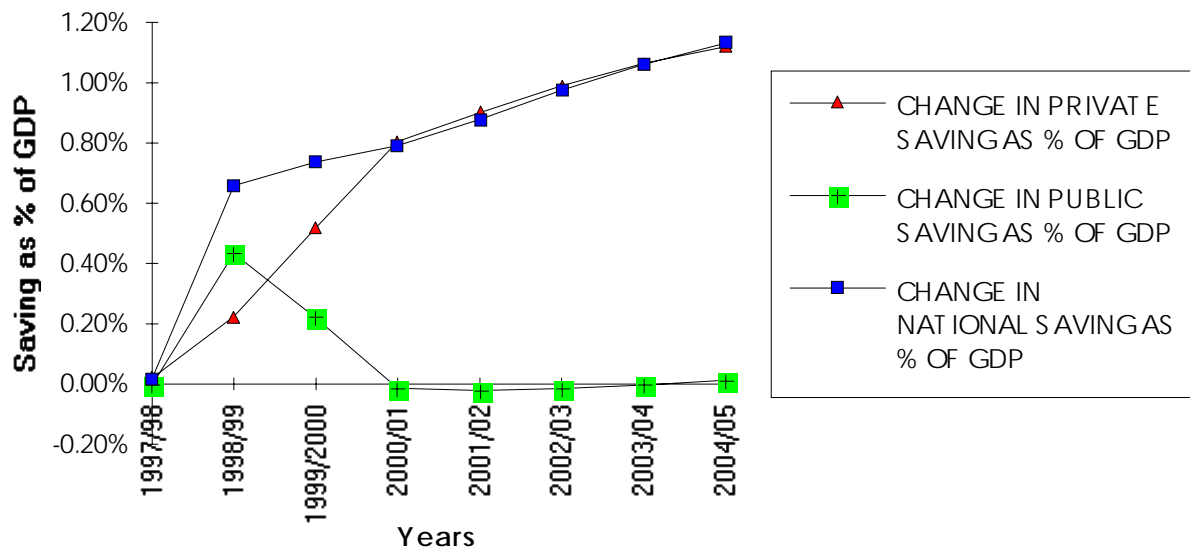
Graph 6

CHANGE IN COMPONENTS OF NATIONAL SAVING FROM SELF EMPLOYED SCHEME : SEMSUPER ESTIMATES



Graph 7

CHANGE IN COMPONENTS OF NATIONAL SAVING FROM TOTAL MEMBER & SELF EMPLOYED SCHEME : MEM+SEMSUPER Results

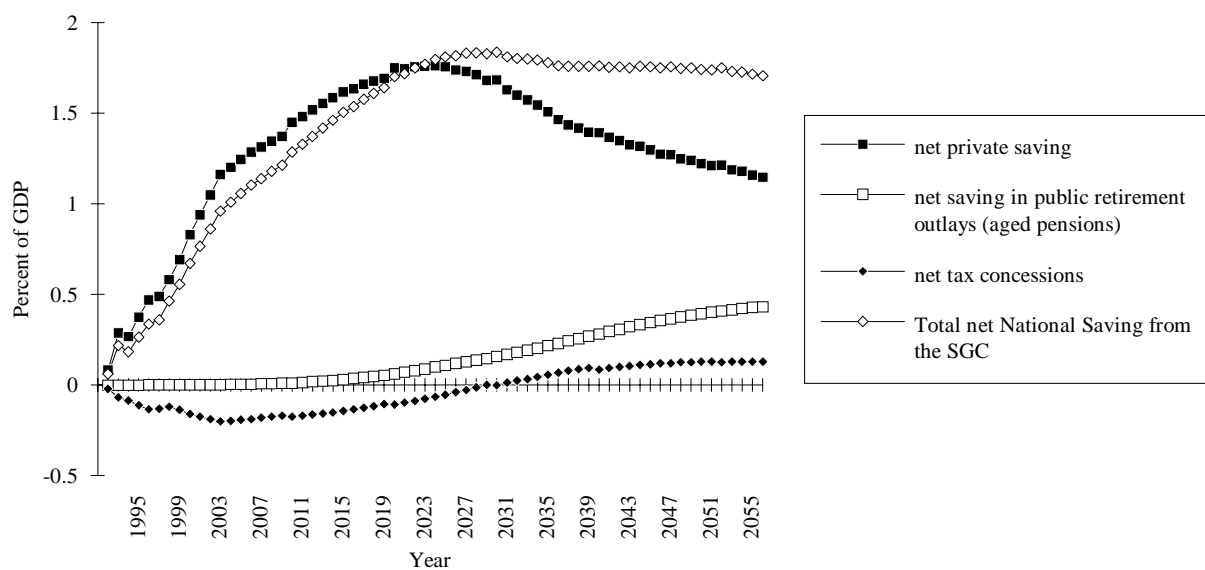


The Economic and National Saving Risks

RIM analyses of the economic risks for retirement income policy have concentrated on the potential for superannuation to add to national financial saving (see Part 4 of the FitzGerald Report (1993), Gallagher, Rothman and Brown (1993), Rothman and Bacon (1994)). The standard analysis looks at the impact of the employer contribution Superannuation Guarantee over the pre-existing award and SGC base by components of national financial saving (Graph 8)

Graph 8

Additional net annual National Saving of Financial Assets from the SGC, assuming 25% dissipation of lump sums, 0.3 savings ratio

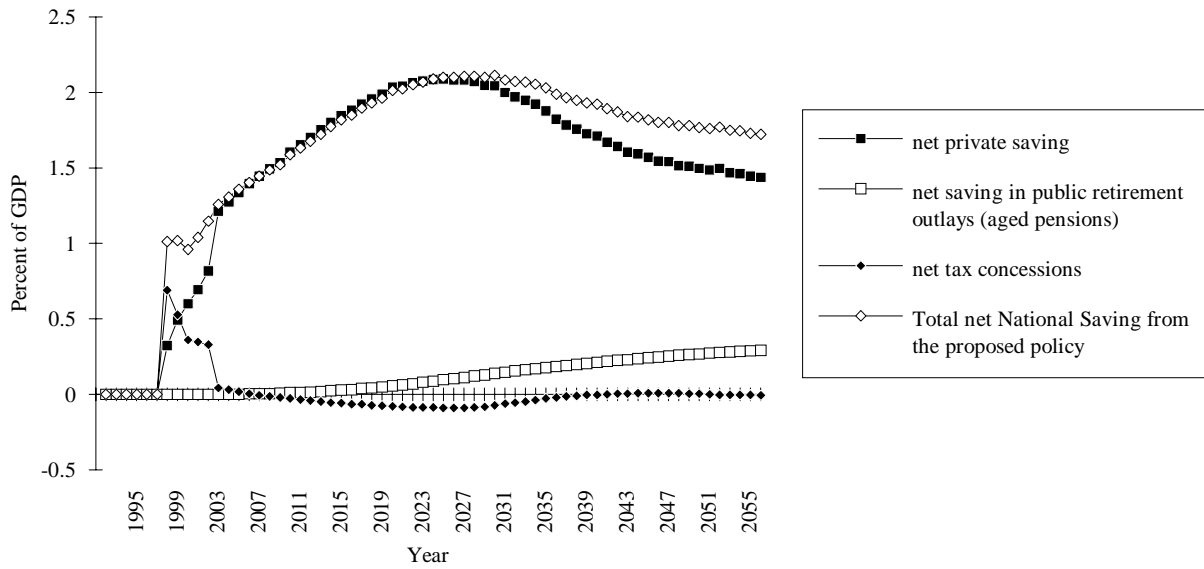


The projection suggests that, even with conservative economic, savings offset and substitution parameters, the SGC has the potential to add 1.8% of GDP annually to net national saving by 2027. The effect arises principally because the employer contributions ensure savings from income constrained employees who would spend most of any counterfactual pay rise. The compulsory preservation of the employer funded superannuation to age 55 is also important. By the year 2000 the tax expenditures associated with the SGC are of the order of 0.2% of GDP or \$900m in current prices. This tax expenditure measure uses the accruals methodology developed by Mr Colin Brown (1993) with a savings offset at 30%. Recent *Treasury Tax Expenditures Statements* have commented on the difference between the RIM methodology and standard methodology.

The Government's new member and government co-contribution policy is expected to add 2% of GDP to national saving by 2025. This is on top of the 1.8% added by the employer SGC. The components of national saving as projected by the RIP model are shown in Graph 9. In this analysis, the saving from not proceeding with the second tranche of the One Nation tax cuts offsets the cost of the Government co-contribution.

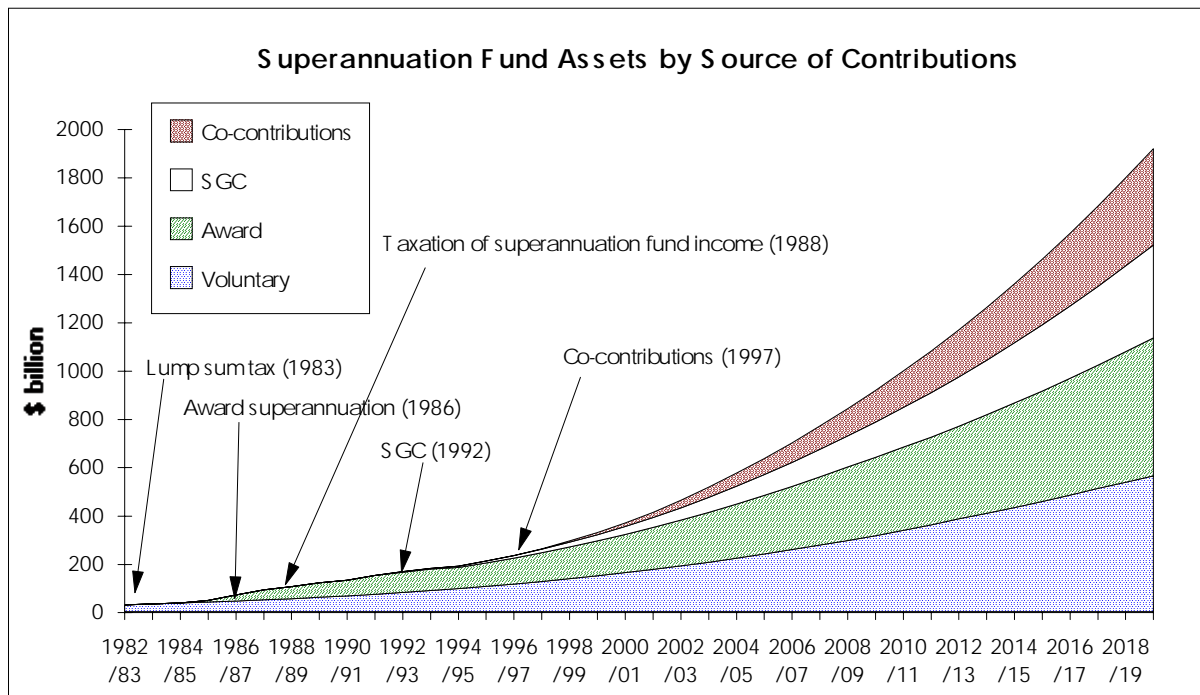
Graph 9

Additional net annual National Saving of Financial Assets from the proposed EMPLOYEE co-contribution with cost of government support offset by no further One Nation tax cuts



The analysis has yielded a projection of the value of superannuation assets. Graph 10, previously published in *Saving for Our Future* (Willis, 1995), is in nominal dollars.

Graph 10



The projected value of superannuation assets in the year 2000 is \$370 billion. This projection is considerably below the \$600 billion estimate by the year 2000 which previously achieved some currency. This 1989 projection was done in a time of very high inflation and assumed its continuation. Fortunately inflation is now considerably lower and is expected to remain so.

RIP and INDMOD have also been important in persuading the Government that the use of superannuation for housing deposits would detract from national financial saving and from tax revenue (see the RIM Response to the Senate Select Committee on Superannuation, 1994). Although RIM's analysis was contrary to the policies being advocated by the Senate Committee it was kind enough to say:

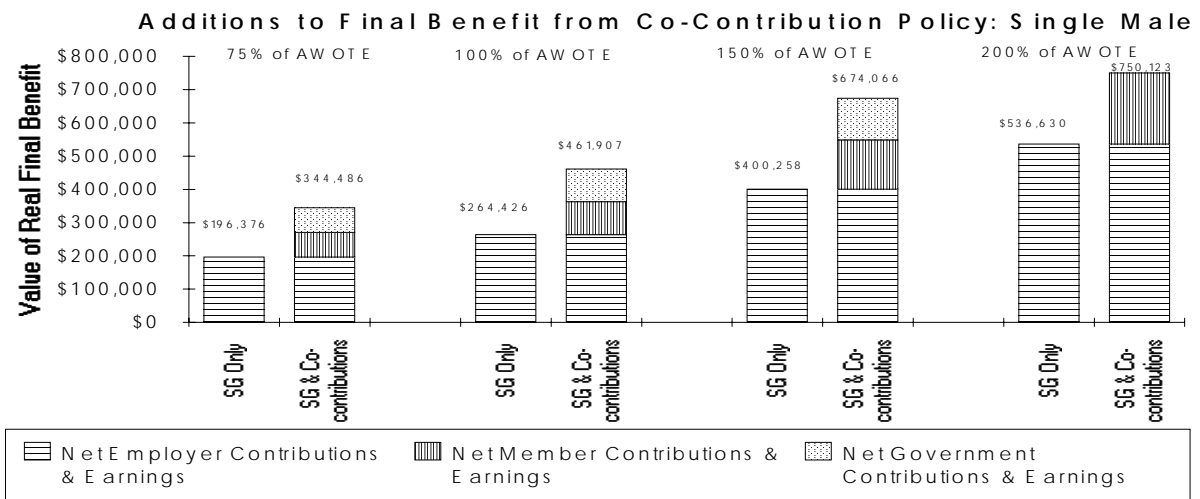
' The Committee would like to put on the public record its appreciation of the valuable contribution that the RIM Task Force has made to the work of the Committee, and in informing the Government and the public of the long term implications of superannuation policy. The Committee is of a view that the material being produced by RIM is world class, with much of it being unique. For this reason, the Committee believes that the Government should give every consideration to maintaining the integrity of the modelling group, at least during the critical phasing-in period of the SGC. '

The current parameter research for RIMGROUP is likely to lead to revisions in the central projections relating superannuation and national saving. Particularly important could be Mr Stephen Miner's work on fund returns and fund taxation and Dr George Rothman's work on dissipation, scheme conversion and the unfunded liabilities of public sector schemes.

Intragenerational Equity Risk

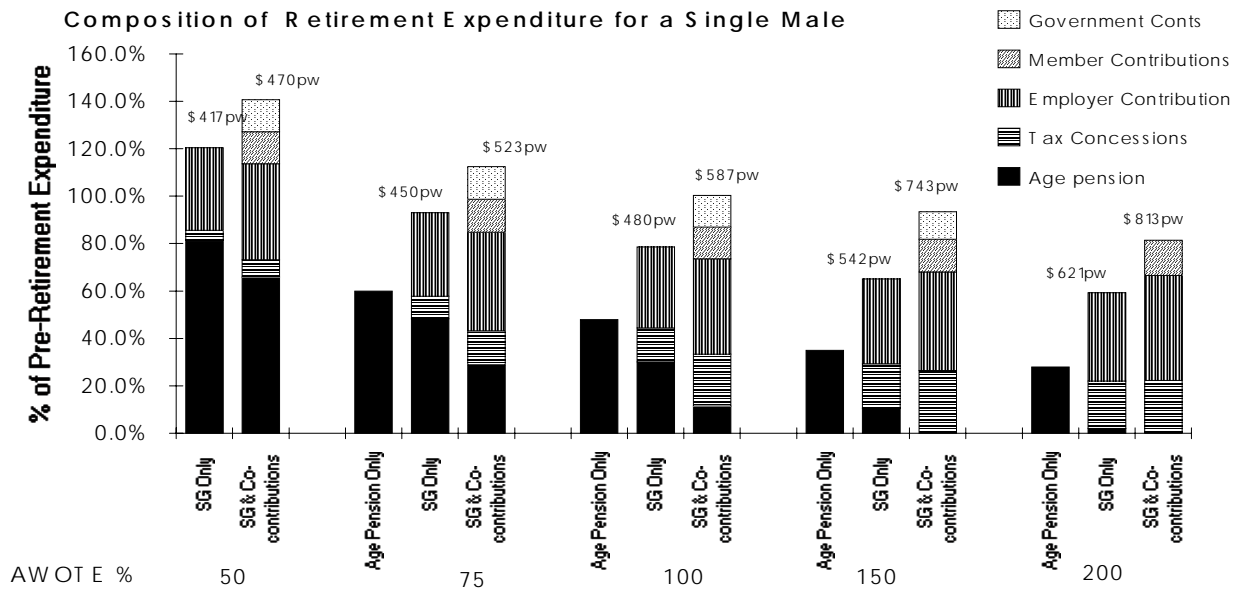
Because RIP does not separate its superannuation accounts by income, RIM has not published much work on aggregate intragenerational equity. MEMSUPER could be used to examine the distributional effects of replacing the second tranche of the *One Nation* tax cuts with the government co-contribution to superannuation. Although at a point in time, the fiscal redistribution is from those with higher taxable incomes to those on lower taxable incomes, over the longer period the member contributions will raise the retirement incomes of those on higher incomes by more in absolute terms. Graph 11 presents the impact on final benefits of the Government's co-contribution policy based on long term hypothetical analysis from RIMHYPO.

Graph 11 (Source: Table One, Willis, 1995)



The distribution of benefits from the new SGC policy with co-contributions is progressive in replacement expenditure terms when measured on hypothetical cases using **INDMOD or RIMHYPO**. The age pension income and assets test is a major factor in achieving this progressivity. Graph 12 comes from Willis (1995).

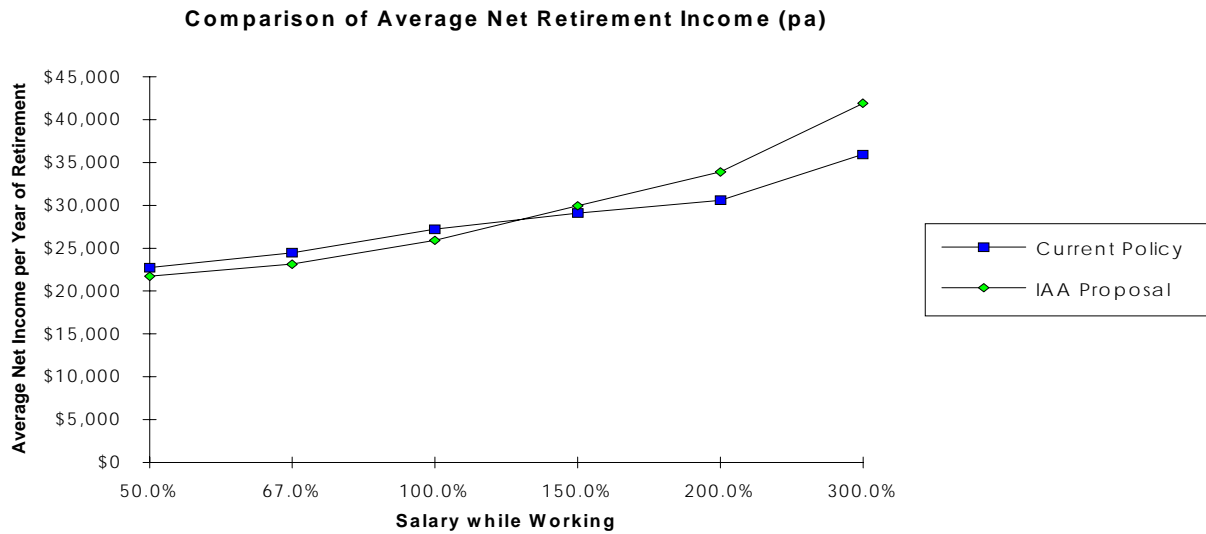
Graph 12



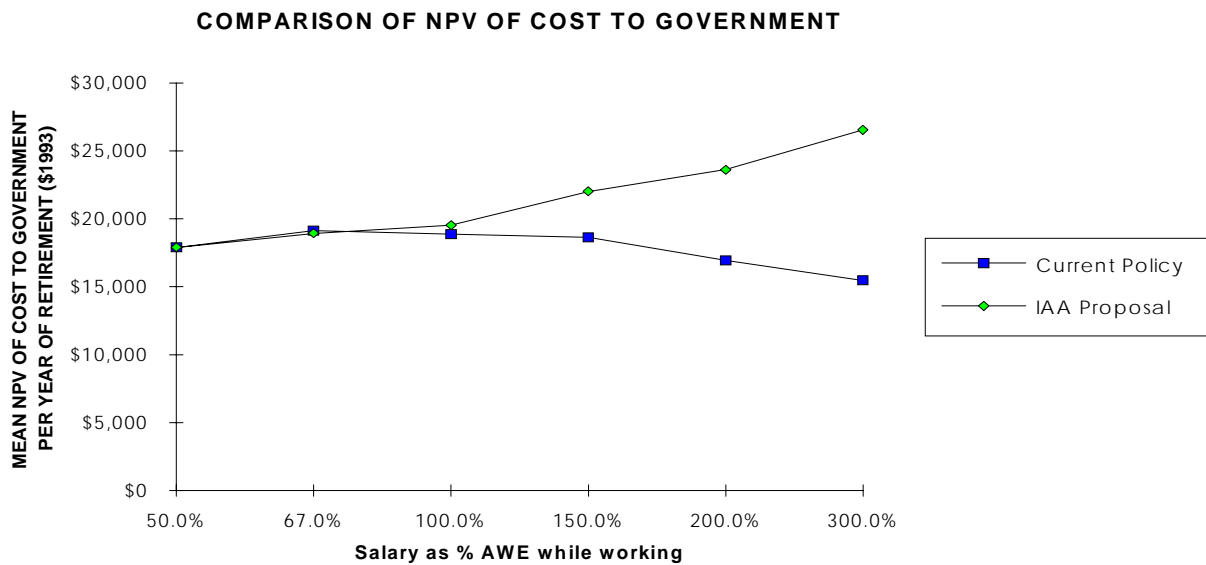
Intergenerational Equity Risks

The pay as you go funding of age pensions and retirement income tax concessions has led to financing of the retired by current workers. As the aged increased in numbers and affluence they could mount increased campaigns for more intergenerational transfers. One recent examples was the Council on the Ageing's campaign for a universal age pension. The Task Force has presented analysis on this issues using its hypothetical models in the *Submission to the Strategic Review of the Pension Income and Assets Test*. The Submission concluded that the proposal from the Institute of Actuaries would be inequitable (Graph 13) and would substantially increase the cost to Government for the representative cases modelled (Graph 14).

Graph 13 (from Gallagher, 1994)



Graph 14 (from Gallagher, 1994)



As the submission to the strategic review illustrates, the RIP model has a limited capacity to analyse taxation, social security outlays and income distribution issues. One other important limitation is that it does not contain estimates of the assets and incomes of the existing retired with the consequence that all are initially given a full pension. These limitations will be redressed in RIMGROUP.

The Behavioural Risks

Labour Force Participation: The fiscal effects of plausible variations in labour force participation will be able to be explored once **RIMGROUP** has been finished. Dr George Rothman has used **RIP** to show that the pattern of national financial saving envisaged from the SGC is not greatly altered by plausible variations in labour force participation. **RIMGROUP** will contain a far more detailed capacity for analysing early retirement as well as personal taxation and social security payments. This should allow a better assessment of the fiscal balance than is possible from **RIP**.

RIMHYPO allows the user to set virtually any pattern of labour force participation and retirement. Hours of work, salary rate, self employment, early retirement and disability retirement are all handled in the model along with superannuation choices such using the two year rule, rolling over, and taking of unpreserved amounts. Fund earnings and fees can also be altered. This gives a powerful capacity to analyse the potential effects of labour force participation on retirement income (and pre-retirement income excluding family payment variations).

Myopia: RIM analysis of savings rates confirms that those in the SGC target population have very low non-superannuation financial saving and that their savings are mostly in the form of housing equity (see Table Two which is taken from Gallagher, Rothman and Brown (1993)). Furthermore, the superannuation assets accumulated by those currently near retirement are lower than would be expected from an SGC scheme with full preservation (see Brown 1994, Rothman 1995). Although the means testing of the age pension will have acted as a disincentive to save for retirement, the existing asset holdings and taking of lump sums when changing employers suggests substantial myopia. In 1986, prior to the introduction of award superannuation, only 39% of employees were covered by superannuation. The market failure has been seen by many as justifying government intervention. Coverage in 1994 was 87% of employees.

Table Two (from Gallagher, Rothman and Brown (1993))

TABLE 2: DISTRIBUTION OF IMPUTED FINANCIAL ASSETS (a) IN THE SGC POPULATION(b) IN 1989-90.

POPULATION	PERCENTILE (c)								MEAN	Standard Deviation	Estimated Persons
	25%	50%	60%	70%	75%	80%	90%	95%			
<i>(Value of Financial Assets that Stated Percentage of Population is below)</i>											
Total SGC (b)	\$0	\$454	\$1,136	\$2,272	\$3,598	\$5,522	\$18,939	\$50,136	\$18,958	\$142,372	6,304,947
INCOME GROUPS											
Below \$20,000pa	\$0	\$189	\$576	\$1,515	\$2,273	\$3,788	\$13,705	\$39,371	\$12,583	\$68,930	2,414,886
\$20K - \$35K pa	\$0	\$477	\$1,038	\$2,083	\$3,030	\$4,545	\$15,152	\$37,288	\$15,615	\$138,988	2,715,587
\$35K - \$50K pa	\$91	\$1,136	\$1,992	\$3,788	\$5,886	\$8,530	\$28,788	\$75,758	\$21,462	\$91,374	838,120
Above \$50,000 pa	\$492	\$3,788	\$8,333	\$16,393	\$25,758	\$41,667	\$115,795	\$350,924	\$85,476	\$405,284	336,354
AGE GROUPS											
17 - 24 YEARS	\$0	\$98	\$326	\$758	\$1,136	\$1,515	\$3,788	\$7,576	\$2,180	\$13,201	1,167,418
25 - 34 YEARS	\$0	\$379	\$758	\$1,515	\$2,273	\$3,598	\$11,334	\$25,417	\$12,646	\$133,669	1,833,742
35 - 44 YEARS	\$0	\$606	\$1,439	\$3,030	\$4,545	\$7,576	\$25,076	\$84,866	\$23,944	\$118,451	1,710,734
45 - 54 YEARS	\$0	\$1,136	\$2,273	\$4,848	\$7,576	\$12,121	\$37,879	\$122,164	\$34,327	\$240,976	1,111,607
55 - 64 YEARS	\$91	\$2,727	\$5,303	\$9,697	\$15,152	\$22,871	\$60,606	\$136,364	\$30,478	\$106,968	481,446

SOURCE: Analysis of the Unit Record Data of the 1989-90 ABS Income & Housing Survey

- (a) Financial assets are ordinary savings plus shares. The value of ordinary savings was imputed by dividing interest income by the bond rate of 13.2%. The value of shares was imputed from dividends using a yield of 6.10%.
- (b) Persons whose 1989-90 wage and salary income was over \$5100 excluding those over 65 or under 18 years and part-time.
- (c) This analysis was performed using PROC UNIVARIATE in SAS with the frequency of each observation set to the integer part of its weight. The analysis would vary slightly if full weights were used in a user written procedure.

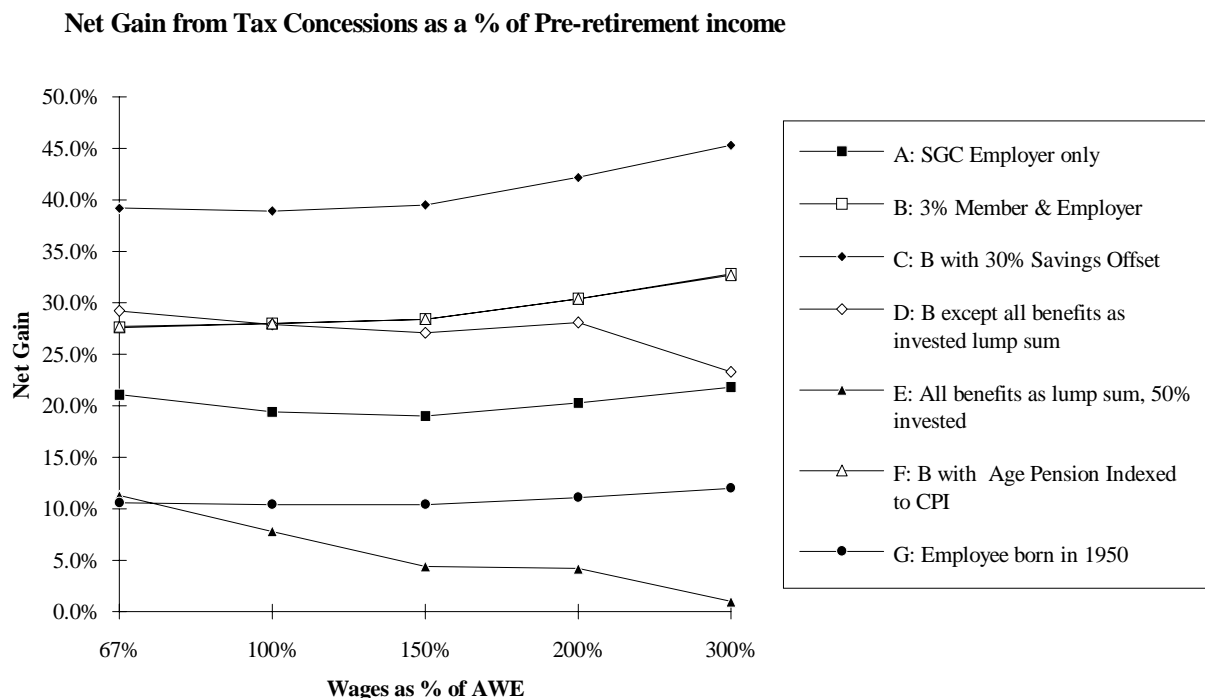
Inappropriate Dissipation: The Task Force has commenced analysis of dissipation using the data on taking of eligible termination payments in the ATO file for 1992/93. The files from the ABS Superannuation Survey and Retirement Survey also include information on taking of lump sums and on intentions to take and use lump sums in retirement. The detailed social security pensions file shows the age variation in asset holdings (by type) which may enable us to test whether people do run down assets appropriately in retirement. It is commonly believed that there is initially a spurt of spending on holidays, paying off debts, and buying a new car followed by a period of interest only drawdowns from remaining lump sums which have been invested in bank accounts paying a comparatively low rate of interest.

Independent of the issue of whether there is dissipation, is the issue of whether it currently substantially affects age pension outlays, or would do so in the future. Kalisch (1992) has pointed out that existing lump sums are generally insufficient to generate an annuity which would lead to a reduction in a married rate age pension under the income test. They would mostly fill the free area. RIMHYPO, INDMOD and RIMGROUP have been designed to test this proposition.

The CostBenefit Risk

INDMOD and RIMHYPO both produce a cost-benefit report on the tax expenditures for superannuation. In both, the superannuation accruals are compared in the current concessional regime and in a counterfactual non-concessional regime in which superannuation is paid as an increase in wages and in which these wages are subject to income tax. Typically, only 30%- 50% of the increase in take home pay is saved. The cost of the policy is measured as the cost to government which is the increase in tax expenditures less the savings on age pensions measured in present value terms in the year of retirement. The benefit of the tax expenditures is measured as the increase in the present value of retirement income streams. Graph 15 shows typical results if the bond rate is used as the discount rate.

Graph 15 (from Gallagher, Rothman and Brown 1993)



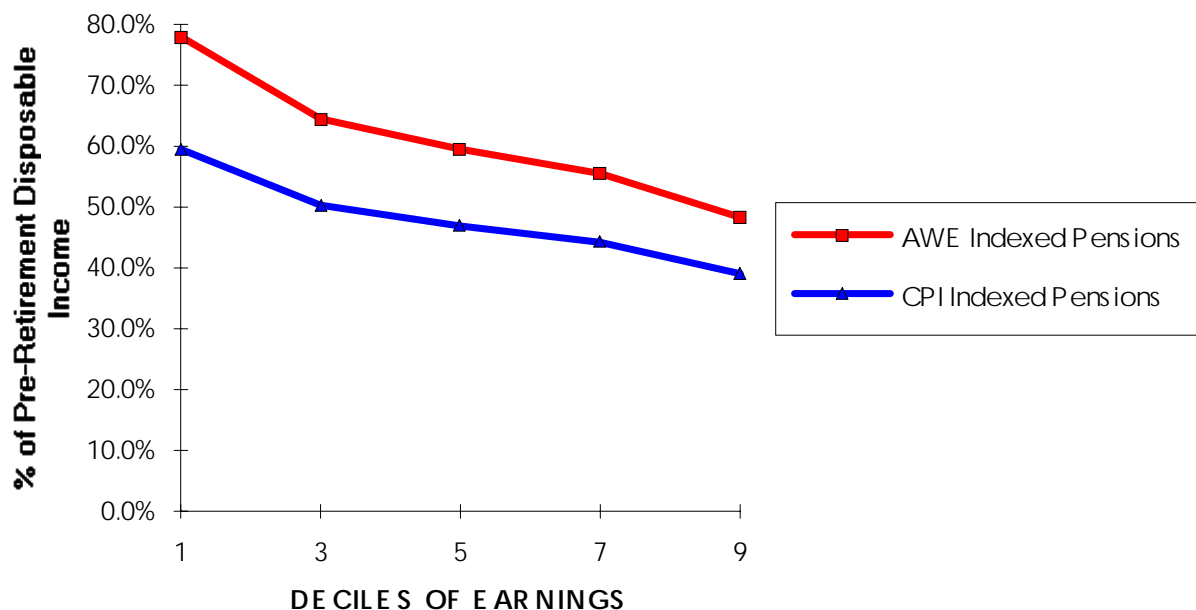
Clearly all groups modelled have a retirement gain which exceeds the cost to government. Brown (1993) has shown that the gain disappears if higher discount rates are used (such as DOF's 8% real criterion). Others have pointed out that the analysis does not include the cost of income forgone by the individual during working life and the fact that the individual's discount rate could be different from the Government's. RIMHYPO could be expanded to analyse these broader measures. The tax expenditures could also be seen as a decrease in consumption for current workers in order to enjoy a higher income in retirement. RIMHYPO and RIMGROUP could be expanded to look at this issue. They could also be used to examine the extent to which higher income taxation for higher income earners pays for their own tax expenditures on superannuation.

ADEQUACY RISKS FOR INDIVIDUALS OR FAMILIES

Poverty Risk

The Government's policy of increasing age pension in line with wages rather than the CPI is generally projected as giving a substantial increase in the living standards of all pensioners. Graph 16 shows the differences in terms of the replacement rates of pre-retirement disposable income.

Graph 16



RIM analysis suggests that ceasing to increase pensions by wage growth would substantially lower the retirement income replacement rates for all except high income earners in the longer term.

Replacement Rate Risk

RIM's analysis has shown that replacement rates are progressive largely because of the pension income and asset tests. The Reasonable Benefit limits are high in relation to most retirement benefits (now and prospectively from the SGC) and unlikely to have any practical impact on progressivity.

RIM has developed a measure of real consumable income (or real expenditure) which adjusts the standard of living pre-retirement for compulsory saving and the standard of living post-retirement

for drawdown of retirement benefit capital (see Brown 1995). This measure has been incorporated into RIMHYPO. It gives replacement rates which are higher than those based on real disposable income and gross income (or taxable or social security income). Replacement rates for low income earners can approach or exceed 100% if a whole of working life base is used. The replacement rates are lower if earnings in the years before retirement are used as the base because there will be less growth in real wages over the shorter period.

Retirement Investment Risk

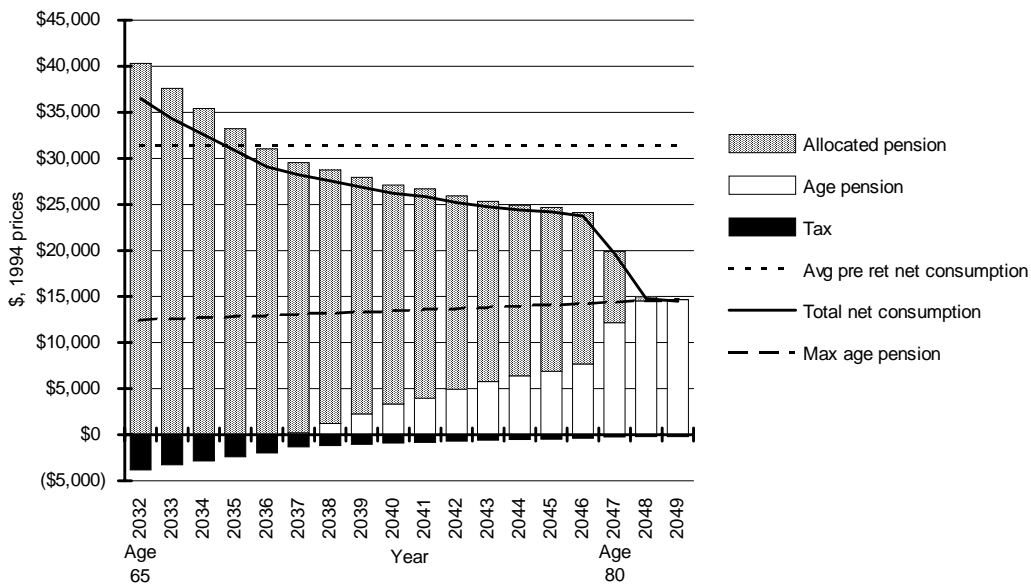
RIMHYPO allows extensive analysis of investment risk because it allows more choice in retirement investments and for variations in economic parameters, fund earning rates, fund and investment fees, and the rate of drawdown of capital in retirement. The retirement investments available include savings accounts, shares and other capital gaining assets, rollover annuities and allocated pensions. Any fraction of lump sums available at retirement can be dissipated.

Longevity Risk

Products such as allocated pensions can cease producing income well before a person dies. Both INDMOD and RIMHYPO allow the actual drop in retirement income to be estimated and graphed as in Graph 17.

Graph 17

Components of net consumption: Superannuation benefits taken as an allocated pension with maximum drawdowns



CONCLUSION

The products of the Retirement Income Modelling Task Force do not only meet the Task Force's Terms of Reference. They have contributed or could contribute to analysis of most of the significant issues in retirement income policy. At this stage the non-completion of RIMGROUP limits the nature and quality of the Task Force's work in the areas of aggregate saving, fiscal analysis, age pension analysis and distributional analysis.

The analytic procedures and datasets developed by the Task Force have general application to time series analysis, personal taxation policy and social security policy.

The Task Force's legacy will be a range of tools, conceptual frameworks and datasets for analysing the differences between retirement income policies in terms of their short, medium and long term effects. Such analysis can be conducted across a range of people and across a range of scenarios about the future.

Task Force on Retirement Income Modelling

Revised Terms of Reference

as agreed at Steering Committee meeting of 28 April 1994

General

To develop a capacity for modelling the impact of retirement income policies over the next half century (see attached Press Release) and to provide advice to departments and Ministers as required on policy options affecting retirement incomes.

Specific

1. The RIM Task Force will construct state-of-the-art computer based dynamic simulation models, of both an aggregate and individual-based (hypothetical) type capable of providing quantitative answers to the following issues:

1.1 The impact over a fifty year time horizon of various retirement income policies (in the taxation, social security, labour market and superannuation regulation areas) on:

- the quantum and distribution of retirement benefits
- the age pension system and the social security system generally
- the quantum and distribution of superannuation tax concessions
- the fiscal balance
- superannuation assets
- private sector saving
- national saving
- workforce participation and retirement patterns

1.2 The sensitivity of model results to key parameters, including:

- demographic variables
- retirement benefits commutation patterns
- lump sum dissipation patterns
- fund earnings rates
- key macroeconomic and microeconomic variables
- the retirement age decision
- contribution/earnings patterns over the life cycle
- relevant tax, superannuation and social security parameters

2. The RIM Steering Committee (comprising officers of the Treasury, the Department of Finance, the Department of Social Security, the Australian Government Actuary, Dr Vince FitzGerald, Professor Adrian Pagan and Professor John Piggott) will approve model specifications and development timetables, and regularly review progress based on reports from the Task Force and its user groups. The user groups will consider the technical aspects of the design, validation, documentation and implementation of the RIM models.

3. While the development of the models is proceeding, the Director of the Task Force will be required to ensure that each of the Departments referred to in 2. above has access to confidential advice on the longer term implications of policy options under consideration, on the basis of the models as they stand, together with adequate explanations of the capability and limitations of the models as at the time the advice is provided.
4. The models will be fully documented on an ongoing basis, and the Director of the Task Force will be required to ensure that at appropriate stages of the models' development, and on completion of the development work, each of the Departments referred to in 2. has full access to models and associated data and training in the use of the models.
5. The Task Force will have regard to the relevant academic and official work in the retirement incomes area. It will be expected to establish contacts with others working in the area, including overseas, and to publish details of modelling methodologies employed in its work.
6. The progress of the Task Force will be reviewed at the end of its first year of operation when these Terms of Reference may be amended.

Notes

It is noted that the Task Force will have access to the National Mutual retirement Income Policy Model on terms set out in an existing agreement of 1 May 1992 between National Mutual Life Association and the Department of Finance (copy attached) and will therefore be responsible for ensuring that the terms of the agreement with National Mutual are complied with.

The Background to Current Australian Retirement Income Policy

The Government's retirement income policy is firmly based upon three principal elements. The first is the publicly provided age pension, set at around 25% of male average weekly earnings, which underpins Australia's retirement income policy and ensures all Australians receive a reasonable minimum level of income in retirement. The second element is the concessional tax system for superannuation and the third is the concessional tax system for compulsory superannuation for workers who receive employer contributions only at a prescribed minimum. The second and third elements are aimed at generating greater private saving for retirement so that people are able to enjoy a standard of income in retirement which is linked to their income while still working and which is well above that which would be possible from the age pension alone.

In the longer term, to the extent to which there is a net increase in national saving as a result of such induced superannuation saving, the increased private retirement saving will also assist in making the provision of an adequate standard of living in retirement affordable in the face of the demands placed upon the economy by an ageing population.

Since 1983, the Government has done much to transform the role of superannuation savings within Australia's retirement income policy framework. Prior to 1983:

- the majority of the workforce were not members of superannuation schemes;
- a very strong tax incentive existed to take superannuation benefits in the form of lump sums (only 5 % of which were taxable at marginal rates) rather than as regular income (fully taxed at marginal rates);
- there was little regulation of superannuation to ensure it was directed at saving for retirement; and
- there was no incentive, or opportunity, to preserve superannuation benefits received on change of employment until retirement and there was a lack of opportunities for portability of benefits. Consequently, superannuation mainly served to provide people with concessional tax windfalls on change of employment.

The Government's policy initiatives in 1983 commenced the reform process for overcoming these shortcomings:

- In 1983, the tax on that component of lump sum benefits relating to employment after June 1983 was increased to reduce the bias against people taking benefits as annuities and pensions and a higher tax imposed on benefits taken before age 55 to encourage benefits to be preserved until retirement after that age.
- Rollover vehicles, namely approved deposit funds and deferred annuities, were also created in 1983 to provide people with the opportunity to preserve their superannuation benefits within the concessional tax environment until retirement no later than age 65 and to facilitate the portability of superannuation benefits when people change jobs.

This system was still based solely on tax incentives for private retirement income provision. The relative failure of these concessions to achieve their desired result can be seen from the poor

coverage of superannuation prior to the introduction of award superannuation when, despite considerable tax incentives, only around 40% of the workforce had superannuation cover, with these mainly being higher income earners and people employed in the public sector. The use of compulsion in retirement income provision arose from the failure of tax concessions by themselves to encourage voluntary savings at a level sufficient to provide reasonable levels of retirement income in the future for all but the very wealthy.

Supporting this, overseas experience has shown that achieving adequate provision for retirement income requires a compulsory system. Most OECD countries have compulsory levies to finance the provision of retirement income, whether through pay as you go schemes or through schemes that advance fund retirement benefits. Compulsory contributions typically are in the range of about 15% of employee earnings, generally shared to some extent between employer and employee contributions, with countries such as Singapore and Spain having contribution rates as high as 40% of employee earnings.

In Australia, our recent attempt at a compulsory system of retirement saving began through the introduction of industrial award superannuation from 1986. The Government encouraged the spread of superannuation through the workforce by agreeing with the peak employee body, the Australian Council of Trade Unions (ACTU), to support 3% of wages being paid as new or improved superannuation as part of a productivity agreement. Award superannuation was fully vested in the member and subject to preservation until retirement after age 55. This agreement was subsequently endorsed by the Industrial Relations Commission and industrial award superannuation became the principal vehicle for increasing the superannuation coverage of wage and salary earners.

Such award superannuation involved a number of problems, including:

- the level of non-compliance with awards by employers and the cost of pursuing employers who are in breach of awards;
- the fact that not all wage and salary earners are covered by awards; and
- the time and difficulty in having award superannuation provisions reflected in awards in all jurisdictions, State and Federal, and the problems this system would pose for achieving increased superannuation contributions.

The Government's 1989 retirement income policy statement, *Better Incomes: Retirement Income Policy into the Next Century* (Howe, 1989), established a retirement income policy in Australia based on the "twin pillars" of the age pension and private superannuation, specifically rejecting the option of a National Superannuation Scheme. This statement affirmed the role of superannuation funds in retirement income policy and emphasised that the system was not subject to a Government guarantee. Essentially, the Government only underwrites the system to the extent of the publicly funded age pension and tax concessions on fund earnings. This made achieving higher levels of superannuation contributions for most wage and salary earners a matter of priority. At the same time, it became increasingly obvious that the initial 3% industrial award superannuation would be insufficient to have much impact on retirement incomes or on age pension outlays, even in the long term. With the refusal of the Industrial Relations Commission to readily grant further increases in industrial award superannuation and the problems with the award system outlined above, a more comprehensive system was clearly necessary to increase the level and coverage of superannuation contributions.

Accordingly, in the 1991-92 Budget, the Government announced the introduction of a **Superannuation Guarantee Charge (SGC)**, to commence on 1 July 1992. Final details were announced in the June 1992 *Security in Retirement* Statement (Dawkins, 1992), along with improved prudential supervision of superannuation and a number of measures to simplify the taxation and Reasonable Benefit Limit¹ treatment of superannuation benefits. Under the SGC, employers are required to make minimum contributions for their employees according to a scale that phases in contributions up to 9% of salary by 2002, with an "envisaged" 3% employee co-contribution also flagged for some time in that period to raise total SGC contributions to 12% of salary. These contributions would be sufficient to provide a gross superannuation income stream of around 40% of final salary on retirement at age 65 after around 40 years' contributory service.

¹Reasonable Benefit Limits restrict the amount of a superannuation payout which attracts concessional taxation. The Security in Retirement statement replaced limits based on a person's highest average salary with flat dollar limits.

BIBLIOGRAPHY

RIM PAPERS

Conference and Other Papers

1. *Tax Expenditures & Measuring the Long Term Costs & Benefits of Retirement Incomes Policy*, Colin Brown, Conference Paper 93/1
2. *Saving for Retirement: The Benefits of Superannuation for Individuals and the Nation*, Phil Gallagher, George Rothman & Colin Brown, Conference Paper 93/2
3. *Retirement Income Modelling & Policy Development in Australia*, Phil Gallagher & Dr Alan Preston, Conference Paper 93/3
4. *Response to the Senate elect Committee on Superannuation for Analysis of the Effects of Allowing Withdrawals from Superannuation Funds for Housing Deposits*, Retirement Income Modelling Paper 94/1
5. *Taxation of Superannuation and Disposable Income in Retirement*, Anne McDiarmid, Women & Superannuation Seminar, Conference Paper 94/1
6. *The Distribution of Private Sector Superannuation Assets by Gender, Age and Salary of Members*, Colin Brown, Conference Paper 94/2
7. *The Impact of Population & Labour Force Scenarios on Superannuation, Tax Expenditures & Pension Costs*, George Rothman & Bruce Bacon, Paper for the Colloquium of Superannuation Researchers 1994, Melbourne, Conference Paper 94/3
8. *Submissions to the Strategic Review of the Pensions' Income & Assets Test*, Phil Gallagher

Papers for the Colloquium of Superannuation Researchers, University of Melbourne, July 1995

Brown, Colin *Measuring the Adequacy of Retirement Incomes*

Rothman, George *The Distribution of Superannuation by Sector, Account Type and Personal Characteristics*

Gallagher, Phil *The Policy Use of the Products of the Retirement Income Modelling Task Force*

Bacon, Bruce *Projecting labour force, Earnings, Asset Accumulation and Retirement Behaviour*

Selected Technical Papers

1. *RIM Population and Demographic Modelling*, Bruce Bacon, Working Paper 94/2
2. *The RIP Model: System Documentation*, Working Paper 94/3
3. *The RIP Model: User Manual*, Working Paper 94/5
4. *Legislative References & Assumptions for RIMHYPO*, Colin Brown & Anne McDiarmid, Technical Paper No. 95/1

Other References

Dawkins, J. (1992) *Security in Retirement - Planning for Tomorrow Today*, a statement delivered on 30 June 1992 by the Honourable John Dawkins, MP, Treasurer of the Commonwealth of Australia, AGPS, Canberra.

Department of Community Services and Health (1990) *The Impact of Population Ageing on Commonwealth and State Social Outlays 1987-1988*, DCSH, Canberra.

FitzGerald, V.W.(1993) *National Saving: A Report to The Treasurer*, AGPS, Canberra.

FitzGerald, V.W. and Harper, I.R., 1993, Super Preferred or "Level Playing Field"?: Implications for Saving and the Financial System, in Head, J.G. (ed.) *Fightback! An Economic Assessment*, papers from a conference organised by the Public Sector Management Institute, Monash University, Australian Tax Research Foundation, Conference Series No. 12, Sydney, pp.123-170; revised version of paper presented to the Third Annual Melbourne Money and Finance Conference, Victoria, December 1991.

Gallagher, P. and McDiarmid, A. *Analysing and Costing Family Policies: The Design and Use of the DSS Policy Effects Model*, paper presented to the Fourth Australian Family Research Conference, 17-19 February 1993, Manly, Sydney.

Haebich, W. and Todd, T. (1989) An Object-Oriented, Computational Model to Support the Formulation of a National Retirement Income Policy, *TOOLS Pacific, Proceedings 1992*, Prentice Hall, Sydney

Howe, B (1989) *Better Incomes: Retirement Income Policy into the Next Century*, A Statement by the Honourable Brian Howe, MP, Minister for Social Security, Australian Government Publishing Service, Canberra.

Kalisch, David (1992) Superannuation and the Age Pension: Double-Dip or Top-Up in EPAC Background Paper 23 *Economic and Social Consequences of Australia's Ageing Population - Preparing for the 21st Century*

Treasury (1994) *Tax Expenditures Statement*, AGPS, Canberra.

Willis, Ralph (1995) *Saving for Our Future* Statement delivered on 9 May 1995 by the Honourable Ralph Willis, MP, Treasurer of the Commonwealth of Australia, AGPS, Canberra.