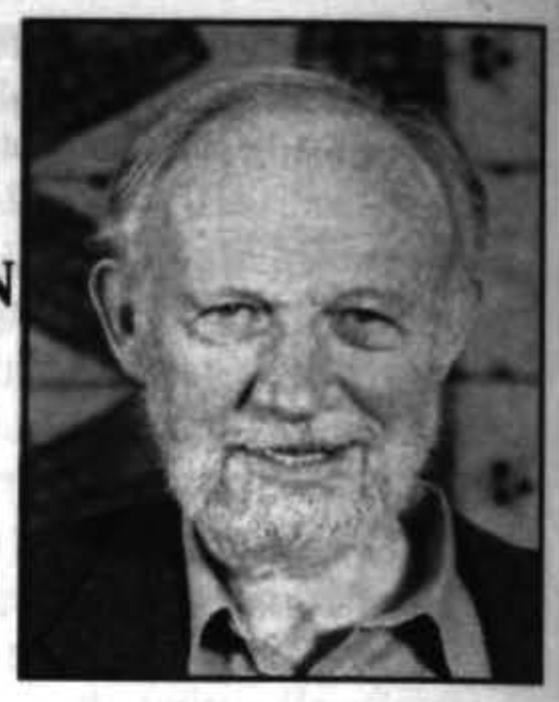
LABOUR MARKET CHANGE AND THE LONG-TERM SUSTAINABILITY OF NEW ZEALAND SUPERANNUATION



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Abstract

Research on the long-term sustainability of New Zealand Superannuation has identified three main policy options; raising the age of eligibility, lowering pension rates relative to the average age, and the targeting of the entitlement. Our paper examines the potential impact of labour market changes on superannuation, under a range of long-term scenarios. The balance between market and non-market work and leisure is certain to be significantly affected by the demands of population ageing. Female participation rates seem likely to ruse as do those of older persons. The long-term historical decline in male participation seems unlikely to continue over the next fifty years. Overall, participation in paid work be persons aged 25-70 will tend to increase. However, our scenarios suggest that no prospective pattern of labour market change is likely, of itself, to solve New Zealand's emerging superannuation problem. All three policy options identified in previous research need to be kept under review as possible responses to emergent fiscal pressures.

Keywords: *Superannuation, pensions, ageing, participation*

Debate about retirement income policy continues. Up until 1999, several studies had examined savings behaviour and the future affordability of New Zealand Superannuation (e.g. Periodic Report Group 1997, Investment Savings and Insurance Association of New Zealand 1998). In contrast little attention had been paid to possible future changes in labour market behaviour or the implications of such change for retirement income policy.

Potentially labour market changes could substantially affect the future affordability of superannuation. Since most people finance their savings out of labour market income, future employment patterns are important determinants of peoples wealth at retirement, and hence of pressures on public superannuation. Future patterns of weekly and hourly earnings are also important because they help determine the ability of future populations to support people in retirement.

This paper draws on research undertaken for the now defunct Super2000 Taskforce and the Ministry of Social Policy (Callister and Rose, 2000).

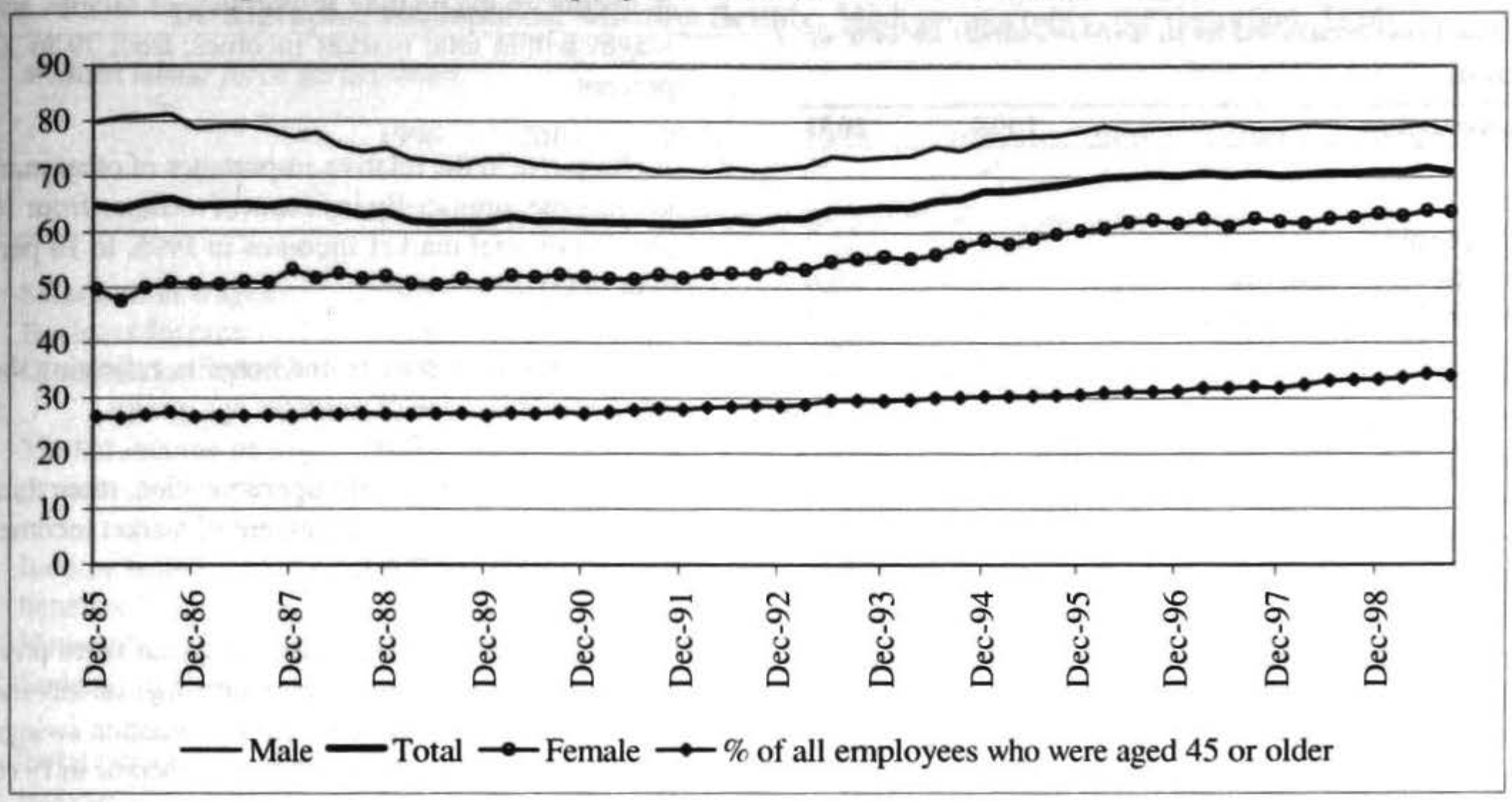
Some Historical Employment Trends

Forecasting future work patterns in a time of rapid social and technological change, inevitably involves a high margin of error. However, assuming that changes in work are going to be evolutionary rather than revolutionary, the past provides some guide to likely future changes. Long-term data shows that employment rates for men aged 15-64 fell through the 1950s, 1960s and 1970s whilst those for females rose. Employment trends were particularly volatile between the mid 1980s and the mid 1990s. However, overall total employment rates for those aged 15-64 did not change substantially in the 42 years from 1956 to 1998 with around 60 percent of this group in paid work.

There was a decline of full-time work per head of population from the 1970s to early 1990s but this reversed in the 1990s. The data do not support the idea of a strong ongoing loss (or gain) of full-time work for either men or women aged 15-64 in the late 1990s. Household Labour Force also data show that the proportion of people aged 45-64 who worked full-time increased over the 1990s.

However, underlying these broad labour market changes for men and women are issues of ethnicity and education. Maori and Pacific Islands workers and, strongly connected with this, people with no formal qualifications, were overrepresented amongst those who had lost their jobs through restructuring. By the mid 1990s, in all age groups, people

Figure 1. Percentage of Men and Women Aged 45-64 Who Were in Paid Employment and Proportion of Total Employees Who Were 45 or Older



Source: HLFS

with little formal education were far less likely to be in paid work than people with formal qualifications.

Our Modelling Exercise

We use two main data sources. First, Statistics New Zealand has prepared special tables on five categories of income from a sample of all individuals for whom tax information was available for the 1996/97-tax year: salaries and wages (including shareholder salaries); business income (including self employment); other market income (including investment income); income tested benefits; National Superannuation.

For each of these categories information on aggregate income, tax payable and the number of people receiving such income was disaggregated by gender and by age enabling derivation of an age by gender matrix of average income by source.

The resulting pattern of incomes is unsurprising. Earned incomes rise to a peak around age 50 and decline thereafter. Male earned incomes are higher than those for females. "Other market income", principally investment income, tends to increase at higher ages presumably reflecting asset accumulation over the life span.

Our second data source is a range of population and labour force projections some specially prepared for this study by Statistics New Zealand.

Our Approach

We accept the 1997 pattern of average incomes as fixed, and representative of the way in which incomes change in response to changes in life experience, to the accumulation of human and financial capital, to changes in employment and eligibility for income support or publicly funded retirement income.

Given this matrix of average incomes, we then ask, what would have been the overall pattern of aggregate incomes had the underlying population and labour force corresponded to that projected for a particular future year for one or other of our demographic scenarios.

We then compare the resulting pattern of aggregate incomes with that prevailing in the base period. Three of these flows, personal income tax payments, national superannuation and payments of income tested benefits, provide an abbreviated picture of the potential fiscal impact of future demographic changes. Table 1 summarizes our findings for our reference scenario, which assumes medium fertility, medium mortality, medium labour force participation and 5,000 net immigration.

Our projections suggest that by 2051 there will be a small fall in tax payments as a percent of market income, a fall in income tested benefits and a more than doubling in the level of national superannuation payments expressed as a percent of total market incomes of persons. The overall balance between taxes and transfer payments deteriorates from a surplus of 6.6 percent to a deficit equal to 3.1 percent of total market incomes of persons.

This picture is clearly partial. Three points deserve emphasis; our treatment of productivity change, the restricted coverage of income flows and fiscal transactions, and our use of comparative statics rather than more comprehensive modelling.

Productivity change is, for good reason, an important element in most economic projections. Changes in productivity through time are the primary source of societal wide

Table 1. Projected Income Flows, 2051

Income flows measured as percent of market income of persons

Income flow	1996	2051
	%	%
Tax payable	22.1	21.3
Income tested benefits	6.9	6.0
National superannuation	8.5	18.4
Taxes less transfers	6.6	-3.1

increases in real incomes and an important determinant of consumption and leisure choices. However, for our purposes productivity change is not central. The incomes of the retired, whether derived from public entitlements or from private savings are judged adequate or otherwise with reference to the standards prevailing amongst the economically active. Improvements in productivity will increase future average market incomes but equally these increases will create expectations of higher income for retired people.

Our picture of aggregate incomes and fiscal flows is incomplete because it does not recognize corporate incomes or trading income accruing to government. Our fiscal position includes only taxes on individual incomes and transfer payments by government. The inclusion of corporate taxes would have required a scale of modelling quite beyond the scope of this project

Which takes us to our third issue, the use of comparative statics rather than more comprehensive modelling. We faced two difficulties. Available models are restricted in their treatment of the labour market. Secondly, comprehensive modelling over long time spans requires a wide range of exogenous assumptions some of which may turn out to be critical when compounded over the long haul.

Our methodology focuses on the variables of primary interest; the projected changes in the age composition of the population; and the age and gender distributions of different types of personal incomes, which provide a convenient summary of labour market outcomes. By combining these two data sets we gain a first impression of future changes in the relative importance of different income flows and of emergent fiscal imbalances. This provides a background against which we can assess the possible direction and scale of future labour market changes in response to these pressures.

Results

Table 2, summarizes the income patterns resulting from application of our technique to our reference demographic scenario (as used by the Super2000 Taskforce), over all available years.

The salient points from Table 2 are;

1. A decline in the relative importance of salaries and wages within total market incomes, from 79 to 73 percent.

2. A sharp rise in the relative importance of other market income, principally investment income, from 10 percent of total market incomes in 1996, to 16 percent in 2051.

3. A slight fall in income tested benefits, reflecting the smaller relative size of younger age groups.

4. A strong rise in National Superannuation, more than twofold, from 8.5 to 18.5 percent of market income, between 1996 and 2051.

5. Most dramatically, the balance between taxes payable on individual incomes and outgoings on income tested benefits and National Superannuation swings from a positive 6.6 percent of market income in 1996 to a negative -3.1 percent in 2051.

6. This change becomes evident in the first decade of the century and acts much more strongly during the 2010s, 2020s and 2030s. There is a suggestion of slackening thereafter.

To this point our experiment suggests that population aging and labour force change, on the scale explicit in current demographic projections, will significantly affect the relative importance of income flows. The scale of these income shifts seems likely to carry serious fiscal implications. In particular the ratio of National Superannuation payments to the sum of market incomes accruing to individuals from all sources, will rise from 8.5 percent in 1996 to around 18 percent in 2051. The same experiment suggests that the balance of taxes on individual incomes less transfer payments, expressed as a percentage of market incomes accruing to individuals, will switch from a surplus of 6.6 percent in 1996, to a deficit of -3.1 percent in 2051.

Behavioural Change

Stresses on the scale implicit in the modelled income and fiscal imbalances are likely to cause behavioural change. We explore these in three stages:

1. We use the standard set of demographic projections prepared by Statistics New Zealand, to explore the implications of changes in fertility, net migration and labour force participation.

2. We then test the possible effects of more radical shifts in labour force participation rates.

3. We then qualitatively assess major labour market influences over the next fifty years.

Table 2. Time Profile of Income Projections

Demographic assumptions. Medium fertility, Medium mortality, net migration, 5,000								
Medium labour force participation								
	1996	**2001**	**2011**	**2021**	**2026**	**2031**	**2041**	**2051**
	Income flows as percent of market income of persons							
Salaries and wages	79.1	78.6	77.4	76.1	75.3	74.6	73.6	73.0
Business Income	10.9	11.1	11.4	11.4	11.4	11.4	11.4	11.3
Other market income	10.0	10.2	11.2	12.5	13.3	14.0	15.1	15.7
Market income of persons	100.0	100.0	100.0	100.0	*100.0*	100.0	100.0	100.0
Income tested benefits	6.9	6.6	6.4	6.3	6.3	6.2	6.0	6.0
National Superannuation	8.5	8.5	9.6	12.3	14.1	15.7	17.7	18.4
Total personal income	115.4	115.1	116.0	118.7	120.4	121.9	123.7	124.4
Tax payable	22.1	21.9	21.7	21.6	21.6	21.6	21.5	21.3
Taxes less transfers	6.6	6.8	5.7	3.0	1.3	-0.2	-2.2	-3.1

Demographic Assumptions

Statistics New Zealand's demographic projections embody alternative age vectors for fertility, mortality, net migration and labour force participation rates. We use projection data embodying nine alternative sets of assumptions, as set out in Table 3. The labour force participation assumptions embody no changes beyond 2011.

Table 4 sets out projections for the year 2051, for each of these scenarios.

Note that the first and third data columns, those for the 1996 base and for the reference scenario, correspond to the first and final columns of Table 28. Table 4 supports the following inferences:

1. Under all variants the 2051 balance between taxes and transfers, is radically different from that in 1996. In contrast to the 1996 surplus of 6.6 percent, the 2051 balance is negative under all scenarios but one and even then the balance is no better than zero.

2. Changes in fertility assumptions have a marked impact on the proportion of persons within the normal working age span in 2051 and on the relative importance of salary and wage incomes. Taxes less transfers rise from a negative -4.6 percent of market income under the low fertility assumption, (LM5M), to a negative -1.7 percent under the high fertility assumption, (HM5M).

3. Migration changes also act strongly. On the reference scenario, (which assumes net annual immigration of 5,000 (MM5M)), taxes less transfers is a negative -3.1 percent of market income. The balance improves to a negative -1.3 percent assuming net annual immigration of 20,000 (MM20M.

4. Changes in labour force participation rates as embodied in the alternative Statistics New Zealand projection sets, do not act strongly on the balance of taxes and transfers.

5. These changes are additive. Increases in fertility, net immigration and labour force participation all work in the same direction. The shift from our reference scenario, to one embodying 20,000 net immigration, changes the balance from a negative – 3.1 percent of market income, (MM5M), to a negative -1.3 percent, (MM20M). Add in high fertility and the balance shifts to negative -0.3 percent. Add in, as well, high labour force participation and the balance improves to zero.

6. Finally, in scenario LMZeroL we explore the opposite hypothesis of low fertility, zero net migration and low labour force participation.

Increases in Labour Force Participation and Lower Unemployment

Increases in dependency ratios create the likelihood of shifts in participation rates. If older people are to maintain reasonable relativity in income standards this will require some combination of; later retirement, greater reliance on investment income, the real value of which will depend on current output; or an increased flow of transfers through public pensions. These pressures suggest in-

Table 3. Alternative Demographic Projection Assumptions

Projection	Fertility	Mortality	Migration	Labour force participation rate	Projected labour force 2051 (000)	Projected population aged 65+	Ratio of workers to retired
1996 base					1,883	430.0	4.4
LM5M	Low	Medium	5,000	Medium	1,902	*1145.0*	1.7
MM5M	Medium	Medium	5,000	Medium	2,108	1145.0	1.8
HM5M	High	Medium	5,000	Medium	2,323	1145.0	2.0
MM5L	Medium	Medium	5,000	Low	2,108	1145.0	1.8
MM5H	Medium	Medium	5,000	High	2,150	1145.0	1.9
MM20M	Medium	Medium	20,000	Medium	2,691	1299.5	2.1
HM20M	High	Medium	20,000	Medium	2,915	1299.5	2.2
HM20H	High	Medium	20,000	High	2,973	1299.5	2.3
LMZeroL	Low	Medium	Zero	Low	1,708	1100.3	1.6

Table 4. Alternative Income Projections for 2051

	Demographic assumptions									
	1996 base	LM5M	MM5M	HM5M	MM5L	MM5H	MM20M	HM20M	HM20H	LMZeroL
		2051	2051	2051	2051	2051	2051	2051	2051	2051
Income flows as percent of market income of persons										
Salaries and wages	79.1	71.9	73.0	74.0	72.8	73.2	74.0	74.7	75.0	71.3
Business Income	10.9	11.4	11.3	11.2	11.3	11.3	11.3	11.2	11.2	11.4
Other market income	10.0	16.6	15.7	14.8	16.0	15.4	14.7	14.1	13.8	17.3
Market income of persons	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Income tested benefits	6.9	5.8	6.0	6.1	6.1	5.9	6.1	6.2	6.1	5.8
National Superannuation	8.5	20.0	18.4	17.0	18.7	18.1	16.6	15.6	15.3	21.2
Total personal income	115.4	125.8	124.4	123.1	124.8	124.0	122.7	121.8	121.5	127.0
Tax payable	22.1	21.3	21.3	21.4	21.4	21.3	21.4	21.5	21.5	21.2
Taxes less transfers	6.6	-4.6	-3.1	-1.7	-3.4	-2.7	-1.3	-0.3	0.0	-5.8

creases in participation rates. We report two scenarios embodying changes in participation rates beyond those built into the standard Statistics New Zealand projections and one embodying lower rates of unemployment.

Our three alternative scenarios are.

1. Low unemployment (Low Unem). We substitute new vectors for age-specific unemployment, giving a reduction in the overall unemployment rate from 7 to 3 percent. Income-tested benefits are correspondingly reduced.

2. Swedish participation rates (Sweden). We substitute projected Swedish 2010 participation rates, which are significantly higher, particularly for females, than in New Zealand.

3. Swedish participation rates with increases at higher age groups (Sweden plus). Using the Swedish 2010 participation rates as a base we lift participation rates in the age groups 60-64 and 65-69, to test for the effect of delayed retirement. We assume substantial abatement of state pensions.

The results of these runs are summarized in Table 5.

The scenarios recorded in Table 5 embody significant change. The net balance of taxes less transfers always reduces, but remains negative.

1. Low unemployment. The balance of transfers less taxes rises from a negative -3.1, to a negative -1.5 percent.
2. Swedish participation rates. The balance of taxes less transfers improves from a negative -3.1 percent of market income under the MM5M scenario, to a negative -1.8 percent.
3. Swedish participation rates and later retirement. Our assumptions of later retirement, with most people working to age 65, about a half continuing to work to age 70, and partial abatement of national superannuation to the latter group, causes significant change. The balance of taxes less transfers improves to a negative -0.3 percent of market income.

Future Trends

Population aging can be expected to affect labour market behaviour as society attempts to maintain and improve living standards and ensure a socially acceptable balance between the living standards of different social groups. Our analysis suggests seven key areas:

1. The balance between market, non-market work and leisure
2. Technological change
3. Globalization
4. The changing skills balance
5. Change in age and ethnic structures
6. Welfare to work
7. Market activities by older people.

The first four are scene setters. The last three relate directly to the implications of population aging.

Our interest is to assess the likelihood of significant behavioural responses, even in seemingly inexorable areas such as technological change and globalization whose influence will, nevertheless, be conditioned by domestic responses, by the successes and failures of domestic companies, by choices made by individuals, as they develop their skills and exploit the opportunities offered both nationally and internationally, and by the choices of policy makers.

The balance between market and non-market work and leisure is likely to be significantly affected by the demands of population aging, although there are some offsetting factors, such as a relative decline in the number of children. Female participation rates seem likely to rise, as do those of older persons. The long-term historical decline in male participation seems unlikely to continue over the next 50 years. Overall, participation in paid work by persons aged 25-70 will tend to increase.

Major technological waves will continue to cause major disturbances to the existing pattern of jobs and frequently cause high rates of job loss. On the contentious issue of trends in skill requirements we judge it likely that there will be continued demand for upskilling. Looking back over the last fifty years it seems clear that an important driver of increased female labour force participation has been an expanding demand for persons with symbolic, analytic and in person service skills. If the demand for these higher skills continues to increase relatively then it will be have to be met from somewhere; through increased learning and training, through further diversion from unpaid work (both male and female), through extensions in

Table 5. Some Alternative Scenarios

	Scenarios	MM5M	Low	Sweden Unem	Sweden plus
	1996 base	2051	2051	2051	2051
Income flows as percent of market income of persons					
Salaries and wages	79.1	73	73.5	74.2	74
Business Income	10.9	11.3	11.3	11	11.9
Other market income	10	15.7	15.3	14.8	14
Market income of persons	100	100	100	100	100
Income tested benefits	6.9	6	4.7	5.7	5.4
National Superannuation	8.5	18.4	17.9	17.4	15.7
Total personal income	115.4	124.4	122.6	123.1	121.1
Tax payable	22.1	21.3	21.1	21.3	20.8
Taxes less transfers	6.6	-3.1	-1.5	-1.8	-0.3

working life, through increased part-time working by tertiary students, or through increased immigration.

There will be significant changes in the age profile of the labour force over the next fifty years. For example the reference scenario MM5M suggests that in the year 2051 there are likely to be as many 55-59 year olds in the labour force as there are persons aged 20-24. In contrast, in 1996, the number in the older age group was only half that of the number of persons aged 20-24. However, history shows that societies have time and time again adapted to major demographic shocks which impact on their labour forces. Our own recent history shows that significantly lower fertility rates have led to a significant fall in the ratio of new entrants to the labour force, which remains largely unremarked and therefore, presumably unproblematic.

The demographic projections prepared by Statistics New Zealand show that there are likely to be significant increases in Maori and in Pacific Island peoples in coming decades. Our conclusions about labour market demand for upskilling and the need for increased labour force participation act to re-enforce the frequently acknowledged need to strengthen policies which enhance the labour market opportunities of such groups.

Competitive pressure from overseas will continue. New Zealand's success in the global economy will depend among other things on the creation and survival of a number of major New Zealand based corporations trading internationally. Management teams will be international in orientation. Integration with Australia is also likely to continue apace with the Trans-Tasman labour market becoming more unified.

Globalization will maintain pressure on all routine, wage-sensitive, operations, thus amplifying the pressure on low-skilled manual jobs that flows from technological change. However, the modern economy demands fulfilment of a very wide range of basic tasks to ensure its daily functioning and this sustains an underlying demand for labour.

We foresee continuing strong growth for persons with symbolic and analytic skills and / or for inter-personal skills. Demand for these skills has been and seems likely to continue to be an important driver of increased female participation and of increased learning and training.

If labour shortages emerge, particularly amongst younger workers, it is likely that consideration will be given to encouraging higher levels of inward migration. This will depend partly on the skills required and on attitudes towards increased flows from newer sources of migration, particularly Asia.

Policy Implications

Finally, we review the policy implications of our analysis in three areas; workforce development and employment policy; policies towards New Zealand Superannuation; and policies relating to savings.

The economy's performance depends upon the quality of its institutions, the quality of its commercial and public investments and the quality of its labour force. Our analysis of future labour market change emphasises the continuing importance of policies directed to workforce development and to the promotion of full employment.

The need for upskilling and for increased labour force participation act to re-enforce the frequently acknowledged need to strengthen policies which assist disadvantaged groups, including Maori and Pacific Island peoples, improve their skills and enhance their opportunities in the labour market.

The extent of changes in participation by older age groups is likely to be conditional upon attitudinal, institutional, and policy changes that would make it easier for older people to prolong their active working life.

The size of the future labour force and the ratio of working age to retired persons will be conditioned by future trends in fertility and migration. While fertility is primarily a social phenomenon, areas of social policy, such as parental leave or childcare support, may have some influence. Historic swings in fertility rates provide a reminder of the potential importance of future changes. Migration policy is determined within a wide framework of considerations. The potential impact of migration on dependency ratios needs to be recognized within this framework.

The Periodic Review Group's 1997 Interim report explored three policy options in relation to New Zealand Superannuation; raising the age of eligibility, lowering pension rates relative to the average wage; and the targeting of the entitlement. Whilst our modelling and analysis tends to highlight the factors that constrain movement in these directions, each remains alive as a future policy option and, as the Periodic Review Group suggests, needs to be kept under review as a possible response to emergent fiscal pressures.

It is common ground to most discussions of retirement policy that increased savings will help increase the transition to an older population age structure. Increased levels of private saving have the potential to increase the asset base of households at time of retirement and thus increase the income, savings and dissaving options open to them at that time. Also, it is prudent for government, as the provider of public pensions, to plan ahead and adjust its own net asset/debt position in anticipation of future fiscal pressures. It is to be hoped that the current explorations of pre-funding for publicly provided pensions will result in an inter-party commitment to developing an ongoing framework in this area.

The surest sign of an improvement in national savings behaviour would be an improvement in the balance of payments and a reduction in New Zealand' level of net international liabilities.

History shows that societies find ways of adapting to major demographic shocks. The changing age structure will create pressures for adaptive responses at many points and in many different ways. Society will doubtless adapt to the projected demographic changes but continued monitoring and discussion will enhance this process.

Future Research

Given that debate will inevitably continue over superannuation policies further research will be needed to assist politicians, policy makers and the wider public to make wise decisions. There are many areas in which research would be valuable. First, it would be worth examining the potential impact of the rapidly integrating New Zealand and Australian labour markets on superannuation policy. Second, work patterns of older people will become increasingly important in determining overall dependency ratios. Topics that could be usually explored in this area include what motivates people to work when 60 and over what are the barriers to continuing work by people in this age group. Third, given that female participation rates, particularly of mothers with young children, are also a critical factor in dependency ratios more research could be undertaken as to why employment rates for women in childbearing ages in New Zealand are lower than those in Sweden and North America. Finally, it would be worth examining more closely the likely future characteristics of the potential Maori and Pacific people's labour force. A key question would be how likely is it that important 'gaps' in areas such as education will have substantially closed over the next three decades?

Notes

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2 During our research we had a useful discussion on income distribution with Des O'Dea. We are also very grateful for comments from Simon Chapple and David Preston who reviewed our report. Any remaining errors of fact or judgement are ours alone.

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